TASMANIAN

LAND SHELLS.

Library of the Museum

OF

COMPARATIVE ZOÖLOGY,

AT HARVARD COLLEGE, CAMBRIDGE, MASS.

Founded by private subscription, in 1861.

No. 11, 871

LIBRARY
MUSEUM OF
CAMBRIDGE, MASS.

A MONOGRAPH

OF THE

LAND SHELLS OF TASMANIA.

—BY—

WILLIAM F. PETTERD.

(Read before the Royal Society of Tasmania, Nov. 12th, 1878, with Additions to April 10th, 1879.)

Tasmania:
PRINTED AT THE "LAUNCESTON EXAMINER" OFFICE.
1879.

A MONOGRAPH OF THE LAND SHELLS OF TASMANIA.

By W. F. PETTERD.

SINCE the publication of Dr. Cox's "Monograph of Australian Land Shells," in which 21 species are enumerated and described as peculiar to this island, our knowledge has been much augmented, principally by Mr. Brazier, who has described in the proceedings of the Zoological Society of London a considerable number of species that I have from time to time discovered. More recently Mr. Legrand published a small work entitled "Collections for a Monograph of Tasmanian Land Shells." This embraced not only what had been previously done, but also enumerated a large number of unrecorded forms that had been sent to Dr. Cox and Mr. Brazier by Mr. Legrand and myself, and were therein described by these well-known conchologists. Further observations show that much confusion has occurred by the slight variations in form and colouration, in more or less favorable localities from which the specimens were collected, being recorded as distinct species. I am now enabled to show that in a great number of instances many of these variations are not of a constant specific character, and this has necessitated a considerable reduction in the number of the so-called species. I have, therefore, undertaken this paper to enable those interested in Conchology to satisfactorily identify specimens, to point out the variations from the typical form, to prevent a still further accumulation of synonymy, and to show that many species heretofore considered as restricted in habitat to certain localities have a much wider distribution than has been recorded. I also

describe several new species, but I have been careful not to name a shell unless it presented constant characters by which its specific distinction is well marked, and by which it may be recognised by conchologists. I consider the correcting of one error far more praiseworthy than the creating of many new species without good reason and careful investigation. I quite agree with the learned botanist Sir J. D. Hooker, that the naturalist "who has the true interests of science at heart, not only feels that the thrusting of an uncalled-for synonym into the nomenclature of science is an exposure of his own ignorance, and deserves censure; but that a wider range of knowledge and a greater depth of study are required to prove these dissimilar forms to be identical, which any superficial observer can separate by words and a name."

Although several of our land shells, principally the larger forms, have no allied representatives in Australia, the great bulk are closely analogous to those recorded from the mainland. The following are common to both:—*Helix Morti; H. Allporti, variety; H. ruga; H. pictilis; H. Stanleyensis; H. Hobarti; H. Legrandi; H. Otwayensis; Vitrina Verreauxi*, and probably *Succinea Australis*. At the present time very little is known of the land shells of Victoria, principally owing to the paucity of investigators in this branch of natural history in that colony; but I have little doubt but that in course of time it will be shown that our land molluscan fauna does not differ to any material extent from that of the mainland. Some few have a more or less close resemblance to those of New Zealand, but they are so few as to be scarcely noticeable, and there is a wide difference between the great majority of the forms. With the exception of eight or nine species, the land shells of this island are small and insignificant, but many are prettily coloured, and under the microscope beautifully sculptured with more or less prominent striæ. A large number are restricted in habitat, so far as at present known, to small areas, and with but very few exceptions are anything but plentiful individually, and difficult to find, as the great majority live in the moist densely timbered gullies and ravines. Very few are arboreous in habit.

The genera *Pupa, Pupina, Helicina, Tornatellina* are totally absent, although well represented in Eastern Australia, and the first is well

represented in South Australia by several fine forms. The present synopsis contains a complete list of all the species of terrestrial mollusca known to exist in the island, with the exception of the *Limacidæ*. There, however, yet remains a considerable portion that has not been examined, and although the number of species may be further augmented, I do not anticipate any material deviation from the forms herein recorded; that is, those that may be hereafter discovered will be species closely allied to those already known. The range of many will probably be found to be even more extended, and in the observation of the habits and characteristics of the animals there yet remains a vast and almost untouched field of research. From the western portion information is more particularly wanted, for there comparatively little has been done. The extreme north and south have, I may say, been thoroughly examined; so that I do not think the central portion will add many to this list, although its examination would increase our knowledge of the distribution, which to the truly scientific conchologist is of as much, if not more, importance than the mere accumulation of numbers; the tendency, I regret to say, of the majority of observers is to look upon trivial variation as of specific importance, and quite overlook the higher aim of the more philosophic naturalist. The total number herein recorded indigenous to, and introduced into, the island is 79 species, belonging to the following genera:—*Helix*, 68; *Bulimus*, 2; *Vitrina*, 3 (?); *Succinea*, 2 (possibly 4); *Truncatella*, 4 (?). But this number will, in all probability, require still further reduction, for the following are of doubtful specific distinction:—*Du Cani*, *positura*, *Stephensi*, *plexus*, *Langleyana*, *questiosa*, *tranquilla*, *Spiceri*, and *Vitrina fumosa*. Two species, *H. bisulcata* and *H. subangulata*, both large and conspicuous forms, are recorded as from Van Diemen's Land, but I have not met with either, and I believe they still remain unique in the British Museum collection, and two are introduced European forms—*H. cellaria* and *H. Pulchella*.

Of the total number (79) Dr. Cox has described 26; Brazier, 14; Woods, 4; Beddome, 3; Pfeiffer, 6; myself, 17; and the remainder by Reeve, Tate, Johnson, Leach, Ferussac, and Küster. The number of species that may be considered as generally distributed over the island is 20, of which number 10 extend in range to the mainland of Australia;

the habitat of two is as yet unknown, and the remainder are, as far as yet known, confined to small areas as noted in the context. Several eminent conchologists have divided the *Helicidæ* into numerous sub-genera, but I have refrained from adopting any system of sub-division, and simply give the various species, so far as practicable, as they are related to each other. I have not given all the references to the numerous scientific works in which many of the species are mentioned, but I think sufficient are given for all practical purposes. I have preferred to copy *verbatim* the descriptions and measurements of the species enumerated in Dr. Cox's "Monograph of Australian Land Shells," and the same with respect to those in Mr. Legrand's book, adding my own observations as to the distribution and variation of the species. My friend, Mr. R. M. Johnston, has suggested a table showing their distribution over the island, and at my request has drawn up the one appended, which I think will be found very useful. In collating this monograph, I am much indebted to Professors Tate and Hutton, and Messrs. Legrand, Brazier, Kershaw, R. M. Johnston, A. Simpson, and C. E. Beddome, for much valuable information and kindly help. Were it not for the ready assistance of these friends my efforts would have been poor indeed ; as it is, I have no doubt some errors have occurred, but I hope the matter will be still further investigated, much more knowledge gained, and my errors corrected. My labour has been one of love, and as it is I offer it to my friends and all interested in the development of conchology, hoping they will overlook its many shortcomings.

The measurements of the new species are given in French millimetres.

Brisbane-street,

Launceston, Tasmania,

April 10th, 1879.

INDEX.

HELIX—	Species.
Allporti, *Legrand*	16
Atkinsoni, *Cox*	36
austrinus „	16
Agnewi „	53
alexandræ „	68
ammonitoides, *Brazier*	56
architectonica „	52
assimilis „	52
antialba, *Beddome*	65
Bassi, *Brazier*	56
Barrenensis, *Petterd*	59
bisulcata, *Pfr.*	2
bombycina „	5
Bischoffensis, *Beddome*	62
cellaria, *Müller*	67
cæsus, *Cox*	21
cæpta „	10
camillæ „	36
Collisi, *Brazier*	29
Curaçoæ „	38
Dyeri, *Petterd*	63
Daveyensis, *Cox*	36
direlicta „	44
dispar, *Brazier*	54
dubitans, *Cox*	5
Diemenensis „	36
Du Cani „	11
fulgetrum „	64
fusco-radiata, *Cox*	37
Fordei, *Brazier*	16
Floodi „	10
Furneauxensis, *Petterd*	31
Gouldi, *Cox*	49
Gunnii, *Brazier*	52
Gadensis, *Beddome*	43
Hamiltoni, *Cox*	9
Hobarti „	27
helicæ „	16
Halli „	32
Hookeriana, *Johnston*	60

HELIX—	Species.
Henryana, *Petterd*	30
Irvinæ, *Cox*	12
Juliformis „	49
Jungermanniæ, *Petterd*	23
Kingstonensis, *Cox*	50
Kingi, *Brazier*	14
Kershawi, *Petterd*	42
lampra, *Pfr.*	4
Launcestonensis, *Reeve*	1
Legrandi, *Cox*	40
lamproides „	3
limula „	41
Langleyana, *Brazier*	15
Luckmani „	26
Lottah, *Petterd*	57
Margatensis, *Cox*	6
medianus „	16
marchianæ „	37
mixta „	18
minima „	29
Morti „	28
mimosa, *Petterd*	50
MacDonaldi, *Cox*	48
Milligani, *Brazier*	10
Midsoni „	36
Mathinna, *Petterd*	39
Nelsonensis, *Brazier*	64
neglecta „	26
Onslowi „	40
Officeri, *Cox*	46
occultus „	21
Otwayensis, *Petterd*	61
parvissima, *Cox*	33
positura „	20
plexus „	12
Pascoei, *Brazier*	10
Peroni „	53
Petterdi „	51
Petterdi, *Cox*	16
pictilis, *Tate*	22

HELIX—	Species.
pulchella, *Müller*	68
questiosa, *Cox*	7
Ramsgatensis „	38
ruga „	6
rotella, *Brazier*	55
Ricei „	40
Roblini, *Petterd*	58
rosaceæ „	45
Sinclairi, *Pfr.*	5
subangulata „	66
similis, *Cox*	44
sitiens „	24
spectra „	52
Stephensi „	10
Sydneyensis „	67
scrupulus „	10
spoliata „	12
subrugosa, *Brazier*	53
stellata „	44
Spiceri, *Petterd*	34
Stanleyensis „	49
Savési „	13
Tasmaniæ, *Cox*	47
trajectura „	18
tranquilla „	17
Thompsoni „	36
tabesces „	16
Trucanini, *Petterd*	25
Tamarensis „	45
vexanda, *Cox*	5
vigens, *Cox*	56
Vitrinaformis, *Cox*	19
Wellingtonensis „	36
Wynyardensis, *Petterd*	8
Weldii, *Tenison-Woods*	35
BULIMUS—	
Dufresni, *Leach*	1
Tasmanicus, *Pfr.*	2
SUCCINEA—	
Australis, *Fér*	2
Legrandi, *Cox*	1
Queenboroughensis, *Petterd*	2
Tamarensis „	2
VITRINA—	
fumosa, *Tenison-Woods*	3
Milligani, *Pfr.*	2
Verreauxi, *Pfr.*	1
TRUNCATELLA—	
marginata, *Küster*	3
scalarina, *Cox*	1
Tasmanica, *Tenison-Woods*	2
micra „	4

TASMANIAN LAND SHELLS.

Sub-Kingdom II.—MOLLUSCA.

Class II.—GASTEROPODA.

Order II.—PULMONIFERA.

THIS order embraces all the land snails and other Mollusca which breathe air. They are normal gasteropods, having a broad foot, and usually a large spiral shell; their breathing organ is the simplest form of lung, and is like the branchial chamber of the sea snails, but lined with a network of respiratory vessels. One large division of the land snails is furnished with an operculated shell; the rest are inoperculate, and sometimes shell-less.—*Woodward's Manual.*

Section A.—INOPERCULATA. Section B.—OPERCULATA.

Section A.—INOPERCULATA.

FAMILY—HELICIDÆ.

Shell external, usually well developed, and containing the entire animal; aperture closed by an *epiphragm* during hybernation.

Animal with a short retractile head, with four cylindrical retractile tentacles, the upper pair longest, and bearing eye-specks at their summits. Body spiral, distinct from the foot; respiratory orifice on the right side, beneath the margin of the shell; reproductive orifice near the base of the right ocular tentacle; mouth armed with a horny, dentated, crescent-shaped upper mandible; lingual membrane oblong; central teeth inconspicuous; laterals numerous, similar.

Genus—HELIX *(Linnæus).*

Shell umbilicated, perforated or imperforate, discoidal, globosely-depressed, or conoidal ; aperture transverse, oblique, lunar, or roundish ; margins distinct, remote, or united by callus.

Animal with a long foot, pointed behind ; lingual teeth usually in straight rows, edge teeth dentated.

Distribution.—World-wide : ranging northward as far as the limit of trees, and southward to Tierra del Fuego, but most abundant by far in warm and humid climates—(*Woodward*). Some thousands of species have been described, and about 270 are recorded from Australia.

1.—Helix ( ) Launcestonensis—*Reeve.*

Reeve, Pro. Zool. Soc., 1852, p. 31, pl. xiii., fig. 11.
Reeve, Conc. Icon., sp. 968.
Cox, Mon., 1868, p. 31, pl. vii., fig. 4, 4*a*.
Legrand, Col. for Mon., sp. 8.

Shell umbilicated, conoid, solid, opaque, not shining, finely granulated, and closely covered above with wrinkled and granular elevated ridges, spiral lines of various sizes, variegated with yellowish green and black ; spire broadly conical, rather obtuse ; whorls 5, very slightly convex, slowly increasing, last acutely keeled, suddenly descending in front ; base convex, very smooth, shining deep black, with a very narrow yellow line under the periphery (sometimes wanting), and a broad bright yellow band beneath ; umbilicus rather large, perspective ; aperture very oblique, lunately elliptical ; peristome somewhat simple ; margins converging, right slightly curved, then a strong sinuation in front, columellar margin slightly curved, moderately thickened, and slightly reflected.

Diameter, greatest 1·30, least 1·20 ; height, 0·65 of an inch,

Habitat.—North-east angle of the island, in the dense brushes on the ground, among decaying vegetable *debris*, and under logs.

The largest, most conspicuous, and at the same time most interesting of our *Helices*, from the fact of there not existing in Australia, or, in short, any part of the world, another species with anything like resemblance to it. It scarcely ever varies from its normal character. It has not been found in any other portion of the island but that above-mentioned, although the same circumstances exist favourable to its life. Almost invariably associated with it are *Bulimus Dufresni* and *Helix lampra*. I have never collected it in open, dry, forest country, but only in the dense fern-tree and myrtle scrubs.

The animal is of a rich chocolate brown colour. Lingual membrane comparatively small, rectangular, 8 mil. long by 2 broad ; 170 rows of 50·50 teeth, minute, bluntly rounded, slightly diminishing in size towards the margin, arranged in regular straight rows, like tesselated pavement.

2.—HELIX ( ) BISULCATA—*Pfr.*

Pfr., Pro. Zool. Soc., 1852, p. 135.
Reeve, Conc. Icon., sp. 969.
Cox, Mon., 1868, p. 32, pl. ix., fig. 19.
Legrand, Col. for Mon., species 1.

Shell widely umbilicated, convexly depressed, spirally and very minutely obliquely wrinkle-striated, shining, tawny chestnut; spire shortly conoidly-convex, slightly obtuse at the apex; suture impressed; whorls $6\frac{1}{2}$, slightly convex, last much wider; periphery obsoletely angular, not descending in front; base flat, sub-compressed about the umbilicus, on both sides impressedly furrowed in the middle; aperture small, slightly oblique, sub-triangularly lunate; peristome rather simple, margins scarcely converging, right straight, sloping, basal slightly arched, somewhat thickened.

Diameter, greatest 1·14, least 0·98; height, 0·50 of an inch.

Habitat.—Tasmania. *Gunn.*

Reeve remarks that it is *Solarium* shaped, the apex tinged with red, and that the lip is simple, peculiarly wart-toothed within, along the ridge formed by the impressed groove.

The only specimen known is in the British Museum, and up to the present time all endeavours to re-discover it have utterly failed. The shell has much the general facies of some of our larger species, particularly with *H. Launcestonensis* and *H. Sinclairi*, and I have no doubt but that it will yet be found to exist in this island, although some collectors are inclined to think that a mistake has been made by Pfeiffer in the habitat as given. The shell has a great resemblance to the larger specimens of *H. Lamproides*, so much so, that for a considerable time I considered the two species identical.

3.—HELIX ( ) LAMPROIDES—*Cox.*

Cox, Pro. Zool. Soc., 1867.
Mon. 1868, p. 28, pl. x, fig. 13.
Legrand, Col. for Mon., sp. 7.

Shell umbilicated, convexly-depressed, thin, closely and irregularly striately ribbed, above scarcely shining, below more so, horny-reddish, paler beneath; spire small, slightly convex; whorls 4, quickly increasing, last not descending, depressed above, beneath convex, bluntly angular; aperture oblique, lunately-rounded; peristome simple, thin, margins converging, right straight, angular in front; columellar margin arched, neither dilated nor reflexed.

Diameter, greatest 0·57, least 0·50; height, 0·22 of an inch.

Habitat—Table Cape, Circular Head, and Duck River.

The measurements of Cox are of immature, or at least stunted, specimens from the vicinity of Circular Head. At the Duck River, in

the dense fern-tree scrubs, it reaches *fully double* that size, probably owing to the moisture being more favourable to its life and development than the dryer locality where the typical specimens were got. I collected it under logs and on the ground in the decaying moist vegetable *debris* in company with *H. lampra* and *Vitrina fumosa*. For some time I thought it the long lost *H. bisulcata*, or that that shell was a malformed specimen; but careful comparison with drawings taken from the Conc. Icon., kindly sent me by Mr. Legrand, has convinced me that the two are very distinct. The present species is so totally different from described forms that it cannot well be mistaken for any other. The nearest to it in general appearance is *H. lampra* and *H. ruga*, from both of which it differs in being bluntly angular at the periphery and also in general colouration. The large specimens mentioned have somewhat the appearance of *H. bisulcata*, which still seems to be intermediate in form between it and *H. Launcestonensis*.

Legrand gives North-West Bay as a habitat, but I feel confident that it is an error, for so far as my observations have gone it is a peculiarly North-Western species, and is in fact restricted to the localities given above. Measurement of largest specimen in my collection is as follows:

Diameter, greatest 29, least 25; height, 17 mil.

4.—HELIX ( ) LAMPRA—*Pfr.*

Pfr., Reeve, Conc. Icon, sp. 1295.
Pro. Zool. Soc., 1854, p. 53.
Cox, Mon. 1868, p. 28, pl. x, fig. 9.
Legrand, Col. for Mon., species 6.

Shell umbilicated, convexly-depressed, thin, horny, translucent, very glossy, with fine arcuate rib-like striæ, from dark green to deep greenish chestnut; spire small, convex, obtuse; whorls 4, quickly increasing, last depressed, expanded outwardly, not descending in front; base smoother, bright greenish-yellow; umbilicus about 1-5th of the diameter; aperture lunately oval, nearly diagonal; peristome simple, thin, straight; margins converging; columellar margin very slightly reflected above.

Variety *a.*—Pale greenish-yellow colour throughout.

Variety *b.*—Flatter than the ordinary form, with the spire scarcely produced.

Diameter, greatest 0·90, least 0·70; height 0·30 of an inch.

Habitat.—Upper St. Patrick's River, Ringarooma, Blue Tier, Duck River, Ben Lomond, Launceston; in short, the whole extent of the Northern Coast, where there is a dense vegetation and a moist soil.

A highly polished and beautitul species, one of the finest and most distinct of our numerous *Helices*, of such constant character that it is scarcely possible for it to be mistaken for any other species, although small specimens have much the appearance of the larger varieties of *H. ruga (Cox)*. Specimens from the vicinity of Launceston, where it is very common, show greater flatness of spire than the generality of those collected by me in Ringarooma and to the west; a pale yellowish-green variety is also more often to be met with. In habit it is a moist-loving species, generally confined to the dense scrub, yet I have found many specimens (rather small) on the dry slopes of the hills around Launceston, and Mr. R. M. Johnston has collected it on the dry exposed slopes of Ben Lomond. Its lingual membrane is large, 14 mil. in length by 3 in width, rounded at one end and pointed at the other, with about 75 rows of 37·37 teeth, arranged in slightly-curved angular rows; each tooth is slenderly acuminate, slightly curved toward the apex, and furnished with a rounded projection on the middle of the posterior side.

This shell seems to represent *H. strangei (Pfr.)* of Australia, from which it is nevertheless very distinct. It has not been observed in the southern portion of the island.

5.—Helix ( ) Sinclairi—*Pfr.*

Zeit-schrift für Malac., 1854, p. 154.
Reeve, Conc. Icon., sp. 1444.
Cox, Mon., 1868, p. 32, pl. vii., fig. 3, 3*a*. 3*b*.
Legrand, Col. for Mon., sp. 12, pl. i., fig. 9, pl. ii., fig. 14.

H. bombycina—Pfr.

Pro. Zool. Soc., 1854, p. 54.
Reeve, Conc. Icon., sp. 1314,
Cox, Mon., 1868, p. 20, pl. x, fig. 2.
Legrand, Col. for Mon., sp. 2.

H. dubitans—Cox.

Legrand, Col. for Mon., sp. 29, pl. ii., fig. 7.

H. vexanda—Cox.

Legrand, Col. for Mon., sp. 43.

Shell umbilicated, depressed, thin, translucent, occasionally shining, very regularly and very closely rather prominently ribbed, horny yellowish, with many interrupted spiral reddish bands; spire flattened; whorls 4, flatly convex, quickly increasing, last large, depressed, convex externally, much deflected in front; base smoother and more glossy; umbilicus widely funnel-shaped, nearly equalling half of the diameter; aperture diagonal, ovately-lunar; peristome simple, thin, regular, margins approximating, columellar margin scarcely dilated or reflected.

Variety *a*.—Dull, dark chestnut colour, the *H. dubitans (Cox)*.

Variety *b.*—Yellow-brown colour above, chestnut below, the *H. vexanda (Cox).*

Variety *c.*—Bright greenish-yellow throughout.

Variety *d.*—Dark greenish aspect, and rounder whorls ; striated as typical. *Habitat*—Macquarie Harbour.

Diameter, greatest 0·70, least 0·60 ; height, 0·25 of an inch.

Habitat.—Mount Wellington, Huon River, Recherche Bay, Port Davey, Macquarie Harbour, Black River, Rocky Cape, River Leven, George's Bay, Chudleigh, Middlesex Plains.

A very variable species, as far as colour and the dispersion of the markings, occasionally very dark with a bronzed lustre, and often met with of a general bright yellow, brown, or even greenish colour, with little and sometimes no markings perceptible. Specimens from Macquarie Harbor have a greenish aspect, and show greater roundness of body whorl, and little, if any, deflection in front, are darker in appearance than those from the south and north and more shining below. It is a moist-loving species, only to be obtained in dense places among decaying leaves that so thickly cover the ground in such places, and under the decaying logs, and sometimes nestling under stones. At one time it was considered peculiar to the southern portion of the island, but more extended research has shown that it has a much wider distribution, although it cannot be said to be generally dispersed, for up to the present time it has not been obtained in the dense scrubs of the north-east. There it seems to be replaced by *H. Launcestonensis* ; nevertheless it may yet be discovered in that, to all appearance, congenial locality. Legrand, with truth, remarks—" There is no doubt that the two species," referring to *H. Sinclairi* and *H. bombycina,* "are identical, as they run so gradually into each other that it is impossible to say where *Sinclairi* ends and *bombycina* begins." On Mount Wellington it may be often met with at an altitude of over 3000 feet, but more abundantly in the dense gullies that converge from that mountain. It may be easily recognised from *H. ruga,* its nearest ally, by its striated base, larger size, colouration and deflection of the upper portion of the aperture ; in the latter respect it resembles *H. Launcestonensis,* although very different in all other respects. Lingual teeth large, aculiate, curved, with an indistinct lump in the middle on the posterior side, arranged in angular rows as in *H. lampra* and *H. ruga.* The lingual membrane in all these species is large and comparatively wide, and greatly resembles that of *Testacella haliotoides,* as figured in Woodward's "Manual of the Mollusca," page 298.

The specimens described by Dr. Cox, under the names of *dubitans* and *vexanda,* are but varieties of colouration, and have no constant specific character of reliable nature.

6.—Helix ( ) ruga—*Cox.*

Legrand, Col for Mon., sp. 24, pl. i., fig. 5.

H. Margatensis—Cox.

Legrand, Col. for Mon., sp. 54.

Shell with a large perspective umbilicus, equalling one quarter of the diameter of the shell ; depressed, rather thin, horny yellow or sometimes dark olive, shining below ; whorls $4\frac{1}{2}$, quickly increasing, regularly striated above with coarse rib-like striæ ; smooth below, last whorl much dilated and slightly depressed near the mouth, which is ovately lunate ; peristome thin and simple, with approximating margins ; columellar margin not dilated.

Variety *a.*—Paler, greenish-yellow.

Variety *b.*—Dark, brownish-red.

Diameter, greatest 0·37, least 0·31 ; height, 0·12 of an inch.

Habitat.—Foot of Mount Wellington, Mount Nelson, Prosser's Plains, Sorell, Circular Head, River Leven, Quamby Bluff, Launceston, East Coast, Recherche Bay, Emu Bay, Flinders Island, and also Victoria, Australia.

The above is the description *verbatim* of the typical form from near Hobart Town ; but as may be imagined from a shell having such a wide range, in fact almost general distribution over the island, the variations caused by more or less congenial situations are very great. It has, however, several common characters that are constant, and by which it may be easily known—notably its smooth base, which is invariably much more polished than the upper surface ; its depressed form, and the regularly coarsely striated upper portion of the shell. It varies in colour from light yellowish-green to a dark rusty-brown, and is often striated irregularly with a darker shade. In size it also varies : many of those collected by me around Launceston are fully as large as the next species (?), *H. quæstiosa.* It is generally found in dry localities, and but seldom met with in moist situations. It may be distinguished from *H. Sinclairi* by its want of the peculiar markings of that species, and the scarcely perceptible deflection in the upper portion of the aperture, a character so persistent in *H. Sinclairi,* and from *H. Stephensi* and allies, by its thicker texture and sculpture generally. There are several allied forms in Australia, and specimens from the Dandenong Range, Victoria, are identical with those from the northern portion of this island. The examples from Flinders Island, Bass Straits, are small, not quite so high as the typical, and of a pale greenish-yellow colour throughout ; they were found on the sand dunes in company with *Vitrina Verreauxi* and a variety of *H. Macdonaldi.* The specimen named by Cox as *H. Margatensis* is but a pale variety. The arrangement of the teeth on the lingual membrane resembles that of *H. lampra* and *H. Sinclairi.*

7.—Helix ( ) quæstiosa—*Cox.*

Legrand, Col. for Mon., sp. 54.

Shell with a large open umbilicus; thin, depressed, dull above, shining below, yellow-brown above, gradually shading off to yellow below; whorls $4\frac{1}{2}$ to 5, convex, rapidly increasing in size, the last dilated outwardly, not descending in front; apex scarcely raised; aperture elongately ovately-lunar; margins simple, approached, columellar margin slightly dilated.

Diameter, greatest 0·55, least 0·40; height 0·22 of an inch.

Habitat.—Oatlands.

I have not seen the typical specimens. It may be but an extreme variation of *H. ruga.*

8.—Helix ( ) Wynyardensis. N. Sp.

Shell with a narrow but deep umbilicus, convexly depressed, rather thick, reddish-brown above and yellowish-white beneath, dull, covered with a thin epidermis; striated with prominent rounded riblets above and below, the interstices with much finer striæ and decussate; spire small, only very slightly elevated; whorls $5\frac{1}{2}$, moderately convex, suture impressed, last large and inflated; aperture luuately-ovate; peristome thin, margins approximating, right somewhat depressed; columellar margin a little expanded.

Diameter, greatest 11, least 9; height, 4 mil.

Habitat.—Table Cape and Circular Head.

A shell with much the general appearance of *H. Stephensi* and *H. Hamiltoni*, but the prominent close-set riblets and the distinct difference in the colouration of the upper and lower surface at once separate it from either of its allies. In the latter respect it resembles *H. lampra*, but the likeness goes no further as far as that shell is concerned. I collected it in the dense scrub under decaying timber. I regret that I am under the necessity of describing the present shell from dead specimens. When living the bi-coloured character is much more definitely shown than in the specimens before me. I am much adverse to the formation of new species on trifling differences, but in the present instance the variation from the ordinary colouration of *H. Stephensi*, *H. Hamiltoni*, and *H. plexus* is so constant, and the regular rounded riblets form such a decided and conspicuous difference, that I think I am justified in describing the shell as a new and unrecorded species, more particularly as the characters given are invariably constant, without the least deviation from the type.

9.—Helix ( ) Hamiltoni—*Cox.*

Cox, Pro. Zool. Soc., 1867.
Mon., 1868, p. 32, pl. vii., fig. 2-2a.
Legrand, Col. for Mon., sp. 4.

Shell umbilicated, sub-discoid, convexly depressed, thin, very closely and sub-arcuately ribbed, interstices with extremely fine thread-like lines, crossed by extremely minute spiral ones, giving the shell, under the lens, a linearly granular appearance, not shining, pale reddish horny; spire small, scarcely projecting, sometimes flat, suture impressed; whorls 5, rapidly increasing, flatly convex, last somewhat inflated, roundly convex, not descending in front, moderately flattened at the mouth above; base with the striæ smaller; umbilicus perspective, nearly equalling one-fifth of the diameter; aperture diagonal, lunately-oval; peristome simple, thin, straight, margins approaching; columellar margin above moderately dilated and reflected.

Diameter, greatest 0·70, least 0·50; height 0·20 of an inch.

Habitat.—Macquarie Harbor, Port Davey, Black River, Circular Head, on the ground in moist places, among accumulations of decaying herbage, and under fallen trees.

Specimens from the last-mentioned locality are much larger than those from either Port Davey or Macquarie Harbour, the margin of the aperture is also a little expanded. I have but little doubt but that it will be eventually shown that the present form with *H. Stephensi*, *H. plexus*, *H. Langleyana*, *H. Kingi*, *H. Du Cani*, and *H. Savési* are but variations of one generally distributed form reaching a degree of development according to the influence of local circumstances, and that the differences are simply varietal and not specific.

10.—Helix ( ) Stephensi—*Cox.*

Legrand, Col. for Mon., species 6, pl. ii., fig. 6.

H. Pascoei—Brazier.

Legrand, Col. for Mon., species 65.
Pro. Zool. Soc., 1872.

H. Milligani—Brazier.

Legrand, Col. for Mon., species 69.
Pro. Zool. Soc., 1872.

H. Floodi—Brazier.

Legrand, Col. for Mon., species 70.
Pro. Zool. Soc., 1872.

H. scrupulus—Cox.

Legrand, Col. for Mon., species 76.

H. cœpta—Cox.

Legrand, Col. for Mon., sp. 41, pl. ii., fig. 2.

Shell with a deep, open, rather narrow, umbilicus; depressly-orbicular, thin, transparent, of a dull brown-yellow colour; spire scarcely

elevated; whorls 5, the last rather inflated, not descending; coarsely and widely transversely striated throughout with rib-like striæ, the interstices being again finely striated; aperture oblique, almost round; peristome simple, not reflected; columellar margin dilated.

Diameter, greatest 0·31, least 0·25; height, 0·12 of an inch.

Habitat.—Mount Wellington, Brown's River to Recherche Bay, Circular Head to Tamar River, around Launceston, Chudleigh, Mount Bischoff, Macquarie Harbour (?).

Somewhat variable, both in size, colouration, and even sculpture, although as a rule the same general aspect is present. In colour it varies from a greenish white to dark brown, and even occasionally assumes a bronzed appearance; the sculpture is more or less prominent in picked specimens, but all have a granular, decussate sculpture, with distant prominent striæ. Specimens collected on the densely-timbered banks of the Leven River are fully twice the size of the typical from Mount Wellington, and on this account Dr. Cox has formed them into a distinct species under the name of *Du Cani*. This I retain for future observation, although I have but little doubt it is but a local variation in size; other slight variations have occasioned the formation of the following—*Milligani*, *scrupulus*, and *Floodi*; the spire is occasionally a little more elevated or depressed than in normal examples, and in a specimen collected at the foot of Mount Wellington the shell was flat with the suture much indented. This Mr. Brazier has named *Pascoei*. I have united these so-called species, after the examination of some hundreds of specimens from numerous localities, which clearly show they are variations of one form, and, as before remarked, it is quite possible that the preceding, present, and five following species are but extreme variations of one generally distributed form. The specimens named by Dr. Cox as *cœpta* are but young individuals, wanting the development of the last whorl.

11.—Helix ( ) Du Cani.—*Cox.*

Legrand, Col. for Mon., species 56.

Shell widely umbilicated, convexly depressed, transversely, finely, obliquely, granularly striated, and longitudinally regularly striated with slightly waved striæ, thin, transparent, pale yellow-brown; whorls 6, rounded; suture deep; spire slightly raised; peristome simple, thin, straight, margins approached; columellar margin not dilated or reflexed.

Diameter, greatest 0·78, least 0·62; height, 0·50 of an inch.

Habitat.—North-west Coast, from Tamar Heads to Table Cape.

I found this species (?) in considerable numbers under decaying masses of vegetation in the thick, almost impenetrable undergrowth on the banks of the Leven River, in company with gigantic specimens of

Bulimus Dufresni, and another variety of *Helix*, which stands to *H. Kingi (Brazier)* as the present form does to *H. Stephensi (Cox)*: it is, in fact, but a very large variety of that species. I have carefully examined a large number of specimens, and find they exactly agree in form and structure to the typical form from Mount Wellington; the only difference is the great size of *Du Cani*. I retain it as a species until I have an opportunity of comparing the animal, and examining the lingual membrane. Mr. Legrand and Mr. Stephens consider that it should rank as a distinct species. The latter gentleman obtained the type specimen from Mr. Gould, formerly Government Geologist, who first met with it at the Leven River.

12.—Helix ( ) plexus—*Cox.*

Legrand, Col. for Mon., species 28, pl. i., fig. 10.

H. Irvinæ—Cox.

Legrand, Col. for Mon., species 71.

H. spoliata—Cox.

Legrand, Col. for Mon., species 75.

Shell turbinately-globose, deeply, openly, and rather narrowly umbilicated, thin, dull, pale horny-brown; sculptured with rather irregular, prominent, arcuate ribs, widely separate, the interstices of which are finely striated transversely; whorls 5, apex raised, last whorl reflexed for a short distance in front; base convex, less prominently ribbed and striated than above; peristome simple, aperture oblique, ovately-rounded; margins approached, columellar margin a little dilated at its insertion; margins joined by a rather thick callus.

Diameter, greatest 0·24, least 0·19; height, 0·20 of an inch.

Habitat.—Rivers Piper, Forth, and Leven, Circular Head, Table Cape, Ben Lomond, and Distillery Creek (near Launceston).

Subject to the same variation in size, colour, and to a certain extent shape, as *H. Stephensi (Cox)*, from which it is doubtfully distinct. I retain the species for shells in which the sculpture is more prominent above than below, in short often entirely wanting at the base, and that portion polished to a more perceptible extent than the upper surface. I have only met with it on the Northern Coast, where it is widely scattered, as may be noticed by the list of localities given in the *habitat* above. Lingual membrane $2\frac{1}{4}$ mil. long by 1 broad, teeth arranged in regular, straight rows, 140 rows of 70·70.

13.—Helix ( ) Savesi. N. Sp.

Shell umbilicated, depressed, very thin ; shining, horny-yellow, occasionally almost white ; prominently, obliquely ribbed throughout, ribs occasionally somewhat moniliform ; interstices with fine striæ and decussate, the latter more perceptible on the upper whorls than in the last ; spire flattened, small, apex projecting, whorls $5\frac{1}{2}$ to 6, flatly-convex ; suture impressed, very rapidly increasing in size, last large, not descending in front ; periphery rounded ; base sculptured as above, but becoming finer as it approaches and enters the umbilicus, which is moderately open and funnel shaped ; aperture diagonal, ovately-lunar ; peristome simple, thin, margins approximating and joined by a thin, shining, smooth callus ; columellar margin a little dilated.

Diameter, greatest 11, least 9 ; height, 5 mil.

Habitat.—Table Cape.

I collected this species in the dense forest at Table Cape with *H. Wynyardensis*, from which it differs in its paler colour, coarse sculpture, height, and thin texture. It may be but an extreme variation of *H. Stephensi*, but the characters enumerated in the diagnosis are invariably constant, and seem sufficient to apply a name to the shell.

Described from a specimen in the collection of, and kindly lent to me by Mr. J. Brazier, to whom I am much indebted for assistance in collecting material for this paper. Named at Mr. Brazier's request after M. Savés, a French collector.

14.—Helix ( ) Kingi—*Brazier.*

Brazier, Pro. Zool. Soc., 1870.
Legrand, Col. for Mon., species 52.

Shell umbilicated, convexly depressed, rather thin ; very closely and irregularly finely striated and decussate ; not shining, brown, horny ; spire conoidly-convex, obtuse at the apex, impressed at the suture ; whorls $5\frac{1}{2}$, slightly convex, last large, depressed in front, somewhat angled at the periphery, base rounded and marked with decussating striæ ; umbilicus deep, sub-compressed ; aperture slightly oblique, lunately-oval ; peristome simple, margins approximating, columellar margin expanded and reflected.

Diameter, greatest 0·37, least 0·29 ; height, 0·30 of an inch.

Habitat.—Ringarooma, Ben Lomond, River Leven, Circular Head, Emu Bay.

Specimens that I have collected at the River Leven are at least three times as large as the type from Ringarooma, but the same in every other respect. It approaches *H. Hamiltoni (Cox)*, but may be known by its battered-like, rough look, the height of spire, and the form of the aperture. It is not at all abundant, and is as often found in dry open places as in the dense moist forest.

15.—HELIX ( ) LANGLEYANA—*Brazier.*

Brazier, Pro. Linnean Soc., N.S.W., 1876, p. 18.

Shell largely umbilicated, discoid, thin ; very finely and obliquely sculptured ; not shining, pale horn-brown ; spire depressed ; suture channelled ; whorls $3\frac{1}{2}$ (?), the three upper ones with the sculpture much rougher, the last large and roundly convex ; aperture oblique, lunately-ovate ; peristome simple, acute, margins distant ; columellar margin slightly reflected at the edge of the umbilicus.

Diameter, greatest $4\frac{1}{2}$, least $3\frac{1}{2}$; height, 2 lines.

Habitat.—Macquarie Harbour, West Coast.

I regret I have not now a specimen of this shell, but I think it is questionable if it is any more than a variety of *H. Hamiltoni* or *H. Stephensi*, both of which vary so much as to render it very doubtful whether they are even distinct in the true sense of the word. I, however, place it in the list for future investigation.

16. HELIX ( ) FORDEI—*Brazier.*

Pro. Zool. Soc., 1870.
Legrand's Col. for Mon., sp. 53.

H. tabescens—Cox.

Legrand's Col. for Mon., sp. 77.

H. Petterdi—Cox.

Legrand's Col. for Mon., sp. 18, pl. i., fig. 2.

H. Allporti—Legrand.

H. Austrinus—Cox.

Legrand's Col. for Mon., sp. 22, pl. 1, fig. 3.

H. Medianus—Cox.

Legrand's Col. for Mon., sp. 19, pl. 1, fig. 3.

H. helice—Cox.

Legrand's Col. for Mon., sp. 20.

Shell perforated, convexly depressed, thin ; closely, finely, obliquely, irregularly striated ; horny-brown to horny-green ; whorls 5, convex, rapidly increasing, last the largest ; keeled at the periphery, grooved at the suture ; spire slightly raised, acute ; base convex, moderately smooth ; aperture oblique, lunately rounded ; peristome simple, margins distant, the columellar margin dilated and reflected, almost covering the small perforation.

Diameter, greatest 0·30, least 0·22 ; height, 0·16 of an inch.

Habitat.—Recherche Bay, South Cape, Mount Wellington, Long Bay, Southport, Mount Bischoff (Johnston), Victoria.

Variety *a.*—Dark chestnut, obsoletely keeled at periphery ; the *H. Allporti—Legrand.*

Variety *b.*—Light olive-green colour ; the *H. austrinus—Cox.*

Variety *c.*—Shell large, last whorl conspicuously keeled, reddish-brown; the *H. medianus—Cox.*

Diameter, greatest 0·41, least 0·35; height, 0·20 of an inch.

Habitat.—Recherche Bay.

Variety *d.*—Same as typical in size, colouration, and form; but the irregular rugose striation is much more prominent, and becomes at the angular portion of the body-whorl very irregularly-distant lamellæ. This variety may be termed *H. M'Coyi.*

Habitat.—Dandenong Range, Victoria.

A somewhat variable species within certain limits, but not so much so as would be imagined by the long synonomy. The specimens named *helice* by Cox are immature shells, wanting the last whorl, and the *tabescens* a trifle flatter than usual. Mr. Brazier remarks—"This species approaches in miniature *Helicarion sophiæ (Gaskoin)* from Lord Howe's Island." Judging from the number of specimens that I have seen, it is equally abundant at the extreme south of the island as *H. Stanleyensis* is at Circular Head; both species are found in company with *H. cæsus.* On Mount Wellington I have often got it among decaying leaves in damp places, and occasionally under logs and stones. At Mount Bischoff one specimen was got by Mr. Johnston under a log. Heretofore it had been looked upon as a strictly southern species, although I have long known of it existing in Victoria. The nearest described form from Australia is *H. radians (Pfr.)*, said to have been got at Port Jackson, New South Wales, but unknown to collectors there. The variety *Allporti* was described by Dr. Cox as *H. Petterdi*, but Mr. Legrand substituted that name for *H. Allporti*, which I retain for that variety.

17.—Helix ( ) tranquilla—*Cox.*

Legrand's Col. for Mon., sp. 37, pl. ii., fig. 3.

Shell deeply and narrowly umbilicated, depressly globose, thin, transparent, pale greenish yellow brown, coarsely striated with lines of growth; spire raised, sub-conoid; whorls $5\frac{1}{2}$, gradually increasing in size, distended, last gently descending in front; aperture diagonal, ovately lunar; peristome simple, not thickened, regular; margins approximating; columellar margin dilated and reflected.

Diameter, greatest 0·35, least 0·28; height, 0·24 of an inch.

Habitat.—Port Davey.

Described from an unique specimen, which is probably but an extreme example of the light coloured variety of *H. Fordei.*

18.—HELIX ( ) TRAJECTURA—*Cox.*

Legrand's Col. for Mon., sp. 36, pl. ii., fig. 6.

H. mixta—Cox.

Legrand's Col. for Mon., sp. 38, pl. ii., fig. 11.

Shell with a deep, narrow, half-covered umbilicus, conoid, thin, transparent, pale brown, not shining, irregularly coarsely striated with lines of growth; spire conical; whorls $5\frac{1}{2}$, the last disproportionately large and sub-carinated; aperture large, slightly angled, oblique, lunately oval; peristome simple, straight, margins approached; columellar margin widely dilated and reflexed, half covering the umbilicus.

Diameter, greatest 0·32, least 0·26; height, 0·20 of an inch.

Habitat.—Port Davey.

There can be no reasonable doubt but that the two species created by Dr. Cox are but slight variations of one form, more especially as they were collected at the same locality, the similarity of the description in Legrand's "Col. for Mon." are very perceptible, and the figures almost identical. Very closely allied to the preceding.

19.—HELIX ( ) VITRINAFORMIS—*Cox.*

Legrand, Col. for Mon., species 58.

Shell imperforate, flatly depressed; yellow brown, thin, horny, translucent; irregularly streaked with lines of growth longitudinally; shining; very finely striated with waved striæ, above and below; whorls $4\frac{1}{2}$, rapidly increasing in size, flat above, last much dilated, not descending in front; spire not raised; peristome straight, simple, thin; aperture proportionately very large, lunately rounded; columellar margin expanded and impressed covering the umbilicus.

Diameter, greatest 0·38, least 0·28; height, 0·78 of an inch.

Habitat.—Springs, Mount Wellington, and foot of La Perouse mountain.

Legrand remarks of this—"An interesting species, easily recognised by the fine longitudinal striæ and *Vitrina*-like form. Until the animal has been seen, it is impossible to determine the section." I collected the type specimen in company with *H. Fordei (Brazier)*, to which shell it has a resemblance. The nearest to it in Australia is *H. Fernshawensis mihi*, from Victoria, from which it mostly differs in its more depressed form.

20.—Helix ( ) positura—*Cox.*

Legrand's Col. for Mon., sp. 42, pl. ii., fig 10.

Shell very narrowly umbilicated, conoidly depressed, thin; of a dull chestnut-brown colour, with strongly marked but widely separated costœ, more prominent above than below; whorls 4, gradually increasing in size, last expanded, sub-carinated, not depressed in front; aperture slightly angled, lunately-rounded, peristome simple, thin; margins approached, columellar margin dilated and reflected over the umbilicus.

Diameter, greatest 0·25, least 0·18; height, 0·12 of aninch.

Habitat.—Recherche Bay.

A small sub-carinated shell, with prominent striæ. I have examined the type and other specimens, and I am convinced that it is but a young *meadianus* or *Allporti*, wanting the last whorl, in which the striæ is more than usually prominent, which is often the case, as also in the typical *H. Fordei.* Retained for further investigation.

21.—Helix)) cæsus—*Cox.*

Legrand's Col. for Mon., sp. 21, pl. i., fig. 4.

H. occultus—Cox.

Legrand's Col. for Mon., sp. 23.

Shell deeply, openly, rather narrowly umbilicated, globosely-depressed; spire rather raised; thin, light, reddish-brown; whorls 5, much rounded, the last slightly depressed in front; base convex, excavated round the umbilicus; surface slightly irregular with lines of growth; aperture almost round; peristome simple, not thickened; margins approximating; columellar margin very slightly dilated.

Diameter, greatest 0·18, least 0·05; height, 0·10 of an inch.

Habitat.—Recherche Bay, near Southport Lagoon, Table Cape, islands in Bass Straits, Circular Head.

The shells described as *H. occultus* are the young immature specimens. At Circular Head it is extremely abundant, gregarious among the rocks surrounding the "Nut" to the seaward, with *H. Stanleyensis* and some other small forms. It is somewhat remarkable that it has been collected at the two extremes of the island; at Recherche Bay it was found associated with *H. Allporti*, and equally as profuse as at its northern *habitats.* So far it has been observed only near the sea, so that it may be considered peculiar to the coast. At Table Cape I observed large numbers of dead bleached specimens, scattered about on the cliffs with its usual northern associates and *Succinea Australis.*

22.—HELIX ( ) PICTILIS—*Tate.*

Pro. Linnæan Soc. N.S. Wales, vol. ii., page 290.

Shell umbilicated, globosely-conical, keeled, thin ; ornamented with distant, strong, unequal, regular curved ribs, the interstices crossed by minute and close raised lines, which produce in certain positions a satiny lustre, coloured above with light chestnut and pale brown or colourless segments ; spire broadly conical, obtuse ; whorls 5, flattish, the last angulated, the carina denticulated ; base slightly sloping, finely ribbed, coloured as above ; aperture angular, broadly-lunate ; peristome thin, simple ; columellar slightly reflected ; umbilicus small.

Diameter, 0·15 and 0·14 of an inch ; height, 0·125.

Habitat.—" Among herbage on the slopes of the Cape Northumberland cliffs, South Australia ; also fossilized in the same rocks, which are indurated blown sands of Pleistocene age, numerous examples." Furneaux Group, Bass Straits (recent and fossilized) ; Circular Head to Emu Bay.

Prof. Tate remarks—"This species closely resembles *H. penolensis, (Cox),* but differs particularly in its coarser ribbing, in its colouration, and by the presence of transverse striæ." In the Furneaux Group it is fossilized with another species of *Helix*, apparently *H. ~~Wellingtonensis~~*. Vast numbers of dead specimens were collected on the sand dunes in company with *H. Barrenensis, mihi*, and *H. Furneauxensis, mihi,* but no search was made among the vegetation for living examples. It is closely allied to *H. cæsus (Cox)*, so much so that many specimens show a gradual assimilation to that species ; in fact it may be but an extreme variation, although I consider it distinct. The peculiar satiny appearance is noticeable in several of our *Helices*, and is very conspicuous in *H. Legrandi* and *H. limula*, although they are very different from the species in question. It is interesting to discover a species of such an extended range, more especially as it is found on both the mainland of Australia and on the islands in Bass Straits, in both a living and fossilized condition. Typical specimens kindly sent me by Professor R. Tate are exactly the same as those collected at Circular Head and Emu Bay.

23.—HELIX ( ) JUNGERMANNIÆ. N. Sp.

Shell small, with a narrow, steep umbilicus ; thin ; obliquely, strongly, and irregularly striated with lines of growth, and very indistinct traces of spiral lines ; brown, shining with a bronze-like lustre ; spire moderately elevated, apex often coroded ; whorls $4\frac{1}{2}$, much

rounded, last somewhat depressed; aperture roundly-lunate, peristome simple; margins approaching, joined by a thin callus; columellar margin faintly dilated.

Diameter, greatest 3, least 2; height, $1\frac{1}{4}$ mil.

Habitat.—Cataract, near Launceston.

Obtained in considerable numbers on the rocks, gregarious under masses of *Jungermannia*. It has a close relation to *H. sitiens* and *H. Luckmani*, but may be known from the first by the want of the regular, prominent riblets; and from the latter by its bronze-like general aspect, and by not having the segments of colour generally present as in that species. It is much larger, differently sculptured, and less globose than *H. Trucaniniæ*. In habit they are all much the same. Hitherto I have only collected it at the locality indicated, where it can always be got by turning over the thick entangled masses of moss that form such a thick carpet on the rocks a short distance above the water. It is very probable that the present, with *H. sitiens*, *H. Luckmani*, and *H. Trucanini*, are but variations of one species; the characters given are, however, so constant that I prefer, for the present, to retain them as distinct.

24.—HELIX ( ) SITIENS—*Cox*.

Legrand's Col. for Mon., sp. 60.

Shell rather largely and openly umbilicated, depressed; dusky-brown, ornamented above and below with broad light-red rays; transversely striated with oblique, transverse, rather prominent riblets, at regular intervals; spire elevated; whorls rounded, gradually increasing in size, last whorl considerably depressed; aperture sub-lunately rounded; peristome simple, blunt; margins closely approached; columellar margin straight, not dilated.

Diameter, greatest 0·10, least 0·08; height, 0·05 of an inch.

Habitat.—Near Hobart Town waterworks, Mount Nelson, Knocklofty, Queenborough (C. E. Beddome).

On Knocklofty I have collected it in numbers, principally crawling on the exposed surface of blocks of rock on the slopes of the hill, and more sparingly under them, with *H. Morti* and *H. Hobarti*. To the last it has a close resemblance, and principally differs from it by its larger size, narrow umbilicus, sculpture generally, and by the rays of colour. From *H. Luckmani* it may be known by the riblets and depression in the last whorl. In habit they much resemble each other.

25.—Helix ( ) Trucanini. N. Sp.

Shell perforated, depressly-convex; of a deep, rich brown, shining; obliquely striate throughout, with lines of growth, many of which are distantly, irregularly prominent, crossed by fine, minute spiral striæ, giving the shell, under the lens, a granular appearance; whorls 4, convex, impressed at the suture; apex obtuse and rounded, descending very little in front; periphery rounded; base convex, sculptured the same as upper portion; perforation small and deep; mouth lunately-rounded, lip thin, acute, margins distant, joined by a thin, smooth, polished callus; columellar margin dilated, almost concealing the perforation.

Diameter, greatest $2\frac{1}{2}$, least 2; height, $1\frac{3}{4}$ mil.

Habitat.—Near First Basin, Launceston; among moss on the branches and trunks of trees, also more sparingly on rocks overgrown by mosses.

Although allied to *H. Luckmani (Brazier)* and *H. jungermaniæ, mihi*, it is nevertheless distinct, and may be separated by its smaller size, different colour, and by the umbilicus, which is very small and almost concealed.

It is of gregarious habit, and nestles in the masses of moss overgrowing trees and rocks, more especially is it plentiful on the former in company with *H. mimosa, mihi.*

26.—Helix ( ) Luckmani—*Brazier.*

Pro. Royal Soc. Tas., 1876.

H. neglecta—Br.

Pro. Zool. Soc., 1870, p. 660.
Legrand's Col. for Mon., sp., 47.

Shell umbilicated, depressly convex, thin; obliquely, faintly, and irregularly striated; whorls regularly marked above with alternate light-red and brown segments; whorls $4\frac{1}{2}$, convex, excavated at the suture, the last not descending in front; base convex, brown; umbilicus deep; aperture roundly-lunate; lip thin, acute; margins nearly approximating; columellar margin not reflected.

Diameter, greatest 0·13, least 0·11; height 0·08 of an inch.

Habitat.—Knocklofty, Mount Nelson, foot of Mount Wellington, Distillery Creek, and Cataract (near Launceston).

Differs from all others by its dingy appearance, and the segments of colour on the upper surface are very characteristic. In form it is allied to *H. sitiens* and *H. Jungermanniæ*, but their respective specific differences are so constant that no confusion need occur in the identification. Heretofore this shell was supposed to be confined to the southern portion of the island, but I have recently found it in great profusion in the vicinity of Launceston, where it is more especially plentiful among mosses on the rocks around the First Basin, and also near the Waverley Woollen Mill at Distillery Creek.

27.—Helix ( ) Hobarti—*Cox.*

Mon., 1868, p. 22.
Legrand, Col. for Mon., sp. 5.

Shell openly and deeply umbilicated, depressed; dusky-brown; closely and regularly transversely-ribbed; spire only slightly elevated, principally produced by the depression of the last whorl; whorls 4½, rounded; base convex, with a funnel shaped umbilicus; aperture almost round; peristome simple; margins closely approximating; no evertion of the columellar margin.

Diameter, greatest 0·12, least 0·09; height, 0·05 of an inch.

Habitat.—The Domain, Hobart Town; Mount Nelson, Procter's Road, and about Launceston; Melbourne, Victoria; Cape Northumberland, South Australia (Tate).

In dry places under and attached to stones. The colouration of the figures in Cox's Monograph is not correct; the red and brown segments were taken from the *H. Luckmani* of *Brazier*, which had apparently, up to that time, been confounded with the present species, and to which it is closely allied, although it can be easily separated by attending to the description. It closely resembles a little shell that is common about Melbourne, Victoria.

The specimens from Cape Northumberland Prof. Tate has named *H. arenicola.*

28.—Helix ( ) Morti—*Cox.*

Catal. of Aus. Land Shells, 1864, p. 22.
Mon., 1868, p. 21, pl. xi., fig. 13.
Legrand, Col. for Mon., species 17.

Shell rather widely and deeply umbilicated, depressly-convex, irregularly transversely ribbed, the interstices being decussately-punctately striate; slightly shining, translucent, horny-brown; whorls 3 to 3½, moderately convex, the last rounded, not descending; spire slightly elevated, obtuse; aperture roundly-lunate; margin approaching; peristome simple; the columellar border slightly everted.

Diameter, greatest 0·08, least 0·07; height, 0·04 of an inch.

Habitat.—New South Wales, South and West Australia, Mount Wellington, near Launceston, the Domain (Hobart Town), Mount Nelson, Emu Bay, and Torquay.

Cox remarks of this species—"The lips are sometimes faintly joined by a callus, and the shell exhibits variation in the distinctness of its arched ribs, which are sometimes obsolete." I have not had an opportunity of examining authentic Australian specimens, those collected in this island and what I have always considered the typical form of this species vary gradually, on the one hand to Cox's *Hobarti*, and on

the other hand become perfectly flat with a sharp carination at the periphery; the prominence of the ribs and their number also vary equally as much as the contour of the shell. I, therefore, think there can be but little doubt but that this species with *H. Hobarti* belongs to one very variable form. However, as I have not typical specimens from New South Wales, I think it as well to retain the species for further examination.

29.—Helix ( ) Collisi—*Brazier.*

Pro. Royal Soc. Tas., 1876.

H. minima—Cox.

Mon., 1868, p. 10, pl. xii., fig. 8.
Legrand, Col. for Mon., species 10.

Shell broadly umbilicated; discoid; shining, yellowish-horny; very finely striated above, smooth at the base; whorls 5, regularly increasing, convex, narrow, last whorl a little descending in front; suture strongly impressed; spire flat; excavated round the umbilicus; mouth lunately-rounded, lip simple, thin; not reflected at the columellar.

Diameter, greatest 0·07, least 0·06; height 0·03 of an inch.

Habitat.—Mount Wellington.

I have not seen this species; it appears to differ from all the other minute forms by the smooth base and finely striated upper surface.

30.—Helix ( ) Henryana. N. Sp.

Shell minute, openly, deeply umbilicated, discoidal; light brown, very highly polished, with very faint traces of lines of growth; whorls $3\frac{1}{2}$, convex, regularly increasing in size; suture impressed; spire slightly elevated; aperture lunate; columellar margin not dilated.

Diameter, greatest $1\frac{1}{2}$, least 1; height, $\frac{3}{4}$ mil.

Habitat.—Domain, Hobart Town; Clarence Plains (J. A. Petterd).

Of this minute shell I have only seen four specimens; they were found by my brother at the localities indicated. Although approaching *H. Furneauxensis mihi* and *H. Halli (Cox)*, it may be easily known by its depressed form and shining smooth surface.

31.—Helix ( ) Furneauxensis. N. Sp.

Shell minute, narrowly umbilicate, conoid; shining, horny, under the lens finely irregularly striated; whorls $4\frac{1}{2}$, rounded; suture im-

pressed; spire a little elevated, obtuse at the apex; aperture almost circular; margins closely approaching; peristome simple; columellar margin faintly dilated.

Diameter, greatest 2; height 1 mil.

Habitat.—Furneaux Group and Waterhouse Island, Bass Straits, Circular Head, Emu Bay, Torquay.

At the first locality it was gathered in depressions on the sand dunes with *H. Barrenensis* and *H. pictilis*. A minute species with some resemblance to *H. Halli*, but from which it differs by its larger size, less elevated spire, and more open umbilicus. It has a close resemblance to the preceding, but is not nearly so highly polished, has a larger number of whorls, and the lines of growth are much more apparent under the lens.

32.—Helix ( ) Halli.—*Cox.*

Legrand's Col. for Mon., sp. 34, pl. ii., fig. 9.

Shell narrowly umbilicated, conoid, thin, pale yellowish-brown; very finely striated; whorls $4\frac{1}{2}$ to 5, regularly increasing in size, rounded; suture deeply impressed; spire conically elevated; aperture lunately-oval; peristome simple, thin; columellar margin expanded at the base.

Diameter, greatest 0·06, least 0·05; height 0·04 of an inch.

Habitat.—Brown's River, Waterworks and Domain, near Hobart Town; Distillery Creek and Cataract, near Launceston; Gad's Hill, Middlesex Plains, near Valentine's Peak, Mount Bischoff, Torquay.

This little species comes near *H. microcosmos (Cox)*, from which it principally differs in colour and height. Its nearest analogue in this island is the sinistral *H. Weldi*, but it, of course, can never be mistaken for that species.

33.—Helix ( ) parvissima—*Cox.*

Legrand's Col. for Mon., sp. 39, pl. ii., fig. 1.

Shell narrowly umbilicated, turbinately-globose, transparent, thin; pale yellow-brown, smooth, shining; spire obtusely-conical; whorls $5\frac{1}{2}$, convex, gradually increasing in size, last not descending in front; aperture irregularly lunate; peristome simple, thin; columellar margin not expanded.

Diameter, greatest 0·05, least 0·04; height 0·06 of an inch.

Habitat.—Brown's River, Mount Nelson, Waterworks, near Hobart Town; Distillery Creek, near Launceston; Mount Bischoff, Surrey Hills, Middlesex Plains.

Somewhat resembling the last, but more conical and smooth.

34.—Helix ( ) Spiceri. N. Sp.

Shell perforate, turbinately-globose, thin, yellow-brown, shining; above obliquely striate and conspicuously decussate, base of body whorl almost smooth and much more shining than upper surface; whorls 5, convex, gradually increasing in size; spire obtusely-conical, last slightly angled, not descending in front; aperture irregularly-lunate; peristome thin; margins distant, joined by a thin but distinct callus; columellar margin slightly expanded.

Diameter, greatest $1\frac{1}{4}$; height, $1\frac{1}{4}$ mil.

Habitat.—New Norfolk, Torquay, Mount Bischoff, Middlesex Plains, Launceston.

Of the same form as the preceding, but is conspicuously decussate, more especially on the upper portion of the shell; nevertheless I think it may prove but a variety in this particular character, for upon examination of a large series of the two in question and *H. Halli*, I am inclined to think them all of one species. This is quite different from any recorded Australian form, and is the nearest in form found in this island to the genus *Pupa*.

35.—Helix ( ) Weldii—*Tenison-Woods.*

Pro. Royal Soc., Tasmania, 1876.

Shell minute, sinistral, narrowly umbilicate, turbinately discoid, rather thin, shining, with close small longitudinal striæ, which are only visible under the lens; pale yellowish horn, and of uniform colour, translucent; spire slightly conical; apex a little prominent, obtuse; suture validly impressed; whorls $6\frac{1}{2}$, convex, gradually increasing; embryonal whorls $1\frac{1}{2}$, whitish; last whorl rounded and somewhat flattened, of uniform colour; peristome simple, acute, horny; aperture roundly lunate; margins of the peristome separated from the umbilicus to half the height of the last whorl; columellar short.

Diameter, greatest $1\frac{1}{2}$; height, $1\frac{1}{4}$ mil.

Habitat.—Stanley, Circular Head.

Collected on the surface of blocks of rock that are overgrown by a thick mass of entangled vegetation, in company with *H. cœsus* and *H. Stanleyensis*..

From the fact of this minute species being constantly reversed it cannot be mistaken for any other of our minute *Helices*. In general form and colour the nearest to it is *H. Halli* and *H. parvissima*, excepting, of course, the sinistral convolution. The only other reversed Australasian species is *H. Magei (Lambert)*, from New Caledonia, but that shell is in other respects widely distinct. It appears to be strictly confined to the habitat given, where it is anything but rare. The reversed form is constant, and I did not meet with a single abnormal specimen.

36.—Helix ( ) Diemenensis—*Cox.*

Mon., 1868, p. 20, pl. vii., fig. 6, 6*a*.
Pro. Zool. Soc., 1867.
Legrand's Col. for Mon., sp. 3.

H. Wellingtonensis—Cox.

Mon., 1868, p. 29, pl. vii., fig 5, 5*a*.
Pro. Zool. Soc., 1867
Legrand's Col. for Mon. sp. 15.

H. Daveyensis—Cox

Legrand's Col. for Mon., sp. 35.

H. Atkinsoni—Cox.

Legrand's Col. for Mon., sp. 62.

H. Thompsoni—Cox.

Legrand's Col. for Mon., sp. 73.

H. Camillæ—Cox.

Legrand's Col. for Mon., sp. 74.

Shell umbilicated, depressly-orbicular, sub-discoid, thin, with thread-like riblets radiating sub-arcuately, frequently extending even to its umbilicus, scarcely shining, varying in colour from glassy white to dirty yellow, and more or less rayed with chestnut; spire small, a little elevated, sometimes flat; whorls 5 to $5\frac{1}{2}$, slowly increasing, moderately convex, last more convex, not descending in front; umbilicus perspective, equalling one-third of the diameter, steep, and often angled at its opening; aperture moderately oblique, lunate; peristome simple, thin, straight; margins approaching; columellar margin neither dilated nor reflexed.

Diameter, greatest 0·27, least 0·23; height, 0·14 of an inch.

Variety *a.*—Chestnut colour throughout, the *H. Daveyensis—Cox.*

Variety *b.*—Glassy-white throughout, the *H. Wellingtonensis—Cox.*

Variety *c.*—Pure white, without rays of colour.

Habitat.—Widely distributed, also islands in Bass Straits.

I have no hesitation in uniting the six species (?) that Dr. Cox has formed of this somewhat varying shell, whose principal differences were that they came from various parts of the colony. The specimens named respectively *Daveyensis* and *Wellingtonensis* are but variations in colour; that named *Atkinsoni* stunted in growth; but the difference separating those named *Thompsoni* and *camillæ* from the typical form is totally beyond my comprehension. I have examined some thousands of specimens from all parts of the island, and also from the majority of the islands in Bass Straits, and I am thoroughly convinced that they are but very slight variations of one common form generally distributed; in fact, from those I have collected around Launceston it is possible to assign picked specimens to any of the species (?), and find intermediate variations one to another. The number of species might be extended *ad libitum* if such slight variations in colour or form are to be considered of specific value. The radiate bands of chestnut are as often absent as

present, and in size it varies according to the more or less favourable nature of the locality. The largest specimens that I have seen came from Flinder's Island ; those got at Corra Linn are also very fine, much more so than any I have seen in the southern portion of the island.

In the "Pro. Zool. Soc. for 1870," Mr. Brazier alters the name of the specimens called by Cox *Atkinsoni* to *Midsoni*, as the former is pre-occupied by Theobald.

It prefers densely wooded situations, living among decaying timber and leaves on the ground ; and is not only abundant from the high mountain ranges to within a short distance above the tidal influence, but has also been obtained in a fossilised condition, with *H. pictilis*, in rocks of Pleistocene age at the Furneaux Group, Bass Straits.

37.—HELIX ( ) MARCHIANÆ—*Cox.*

Legrand's Col. for Mon., sp. 25, pl. i., fig. 7.

H. fusco-radiata—Cox.

Legrand's Col. for Mon., sp. 61, pl. ii., fig. 2.

Shell discoid, broadly and perspectively umbilicated, thin, translucent, glossy, pale horny-yellow, irregularly finely striated throughout, very faintly marked with irregular transverse horn streaks ; whorls 4½ to 5, convex, very gradually increasing in size ; spire flat ; suture wide, and rather deeply impressed, last whorl scarcely descending in front ; aperture oval ; peristome simple, thin ; margins approaching ; columellar margin not dilated or reflected.

Variety *a.*—Obsoletely rayed with chestnut.

Diameter, greatest 0·19, least 0·16 ; height, 0·08 of an inch.

Habitat.—Recherche Bay, Brown's River, Springs (Mount Wellington), Ben Lomond, Corra Linn (near Launceston), Chudleigh.

This is a very distinct species, distinguished from *H. Diemenensis* by its glassy appearance, lines of growth, and much smaller size. On Mount Wellington it is very rare, and only met with at an altitude of about 2500 feet. On Ben Lomond it was got on the slopes in company with *H. lampra* and *H. Kingi*, two species confined to the north. At Corra Linn Mr. Johnston found specimens of a rather large size, many of which were obsoletely rayed with numerous narrow bands of chestnut colour.

The specimens described under the name of *H. fusco-radiata (Cox)* are but the young of this species.

38.—Helix ( ) curaçoæ—*Brazier.*

Pro. Zool. Soc., 1870.
Legrand's Col. for Mon., species 48.

H. Ramsgatensis—Cox.

Legrand's Col. for Mon., species 33, pl. i., fig. 13.

Shell rather widely umbilicated, depressed, thin, very closely and finely plicately ribbed, interstices smooth, white, not shining; spire depressed; suture rather deep; whorls $4\frac{1}{2}$, rapidly increasing, convex, last large, rounded, not descending in front, base ribbed, same as upper surface; umbilicus perspective; aperture oblique, roundly-lunate; peristome simple, thin, acute; columellar margin slightly reflected.

Diameter, greatest 0·25, least 0·20; height, 0·13 of an inch.

Habitat.—Mount Wellington, Recherche Bay, Mount Nelson (?).

A very distinct species, easily distinguished by its small sunken spire, dull appearance, and somewhat distant plicate riblets. It varies in colour from reddish-horn to white. It is represented in the northern portion of the island by *H. Mathinnæ (mihi)*, to which it is closely allied but yet distinct, as may be seen by the description.

39.—Helix ( ) Mathinnæ. N. Sp.

Shell steeply, somewhat narrowly, umbilicated; depressed, covered with very prominent ribs, which are irregularly plicately fringed, widely apart, and often faintly irregular in deposition and becoming almost obsolete at the apex; shining, horny, almost waxy appearance; interstices and ribs again striated parallel with the ribs, and also faintly transversely, giving an irregular crenated appearance to the base of the ribs; spire depressed; suture deep; whorls 4 to $4\frac{1}{2}$, rapidly increasing, convex, last rounded, not descending in front, base sculptured as upper surface and descending into the deep umbilicus, which is rounded at the bottom, intercostal spaces of base conspicuously decussate; aperture roundly-lunate; peristome acute; columellar margin not reflected.

Diameter, greatest $6\frac{1}{2}$, least $5\frac{1}{2}$; height $2\frac{3}{4}$ mil.

Habitat.—Near First Basin, Launceston.

The most beautifully sculptured of our known *Helices*, and one that cannot well be mistaken for any other. The nearest to it is *H. Curaçoæ (Brazier)*, but it differs from that species by its more elaborate ornamentation. Up to the present I have collected it only in a gully at the locality mentioned, where it is very rare, hiding under large stones in a thick jungle.

40.—Helix ( ) Legrandi—*Cox.*

Mon., 1868, p. 23, pl. xii., fig. 7.
Legrand's Col. for Mon., sp. 9.

H. Ricei—Brazier.

Pro. Zool. Soc., 1870.
Legrand's Col. for Mon., sp. 49.

H. Onslowi—Brazier.

Pro. Zool. Soc., 1870.
Legrand's Col. for Mon., sp. 46.

Shell openly umbilicated, depressly-obicular ; rather irregularly, closely, and sharply striated ; reddish-brown ; spire flat, but not excavated in the centre ; suture impressed ; whorls $4\frac{1}{2}$, flattened and slanting towards the suture, last tumid, not descending in front ; umbilicus widely open, freely exposing the whorls ; aperture round, lips simple, thin ; margins closely approaching ; columellar margin not reflected at the base.

Variety *a.*—White, occasionally pale yellow.

Diameter, greatest 0·13, least 0·12 ; height 0·07 of an inch.

Habitat.—Widely distributed : Mount Wellington, Launceston, Ringarooma, Circular Head ; also Victoria (?).

Very much resembling *H. iuloidea (Forbes)*, so widely dispersed through Eastern Australia ; it may be but a variety of that species. Around Launceston it is very common, and is more often to be got on the exposed slopes of hills under stones and logs ; those found where there is a dense moist herbage are generally paler in colour than the typical form ; hence Mr. Brazier has named a variety of this description as *H. Ricei*, and another specimen from Mount Wellington the same gentleman has named *H. Onslowi*, principally because the epidermis was clearly shown. A species so generally distributed, as may be expected, varies a little from what may be looked upon as the normal and typical appearance. Some I have collected on the shaded banks of Rocher's Creek are paler in colour, and have distinct coloured lines of growth. Almost all the specimens I have seen, some hundreds, are more or less decussate in the interstices—a character not noticed by Cox in his description, and the umbilicus is scarcely ever so open as to freely expose the whorls. It may be known by its orbicularly-depressed form and striated surface. I have no doubt about the identification, as both Mr. Brazier and Mr. Legrand have kindly sent me typical specimens got from Dr. Cox.

41.—Helix ( ) limula—*Cox.*

Legrand's Col. for Mon., species 72.

Shell perforate, thin, orbicularly-depressed, of a light brown metallic colour, discoid ; thin, closely, and finely striately ribbed above and below ; whorls 5, very gradually increasing in size, flat, last not

depressed in front ; spire not raised ; suture large, base rounded ; umbilicus not open ; peristome simple, thin ; aperture ovately lunate ; margins slightly approached ; columellar margin triangularly dilated, concealing the minute umbilicus.

Variety *a.*—White.

Diameter, greatest 0·13, least 0·11 ; height, 0·5 of an inch.

Habitat.—Piper River ; South Road, Circular Head ; Blue Tier (Simson), Duck River, Chudleigh, Gad's Hill, and about Launceston.

Totally different from any other, and easily recognised by its closed umbilicus and silky appearance. Of rare occurrence in thick, densely timbered places, generally on the ground, but I have met with many specimens deeply buried in decaying trees. Cox remarks concerning it —"This species is closely allied to some of the more finely sculptured and light coloured varieties of *H. sericatula (Pfr.)* so abundant in New South Wales." I have a small species from Cape Otway, Victoria *(H. Otwayensis, mihi)*, with much of its general appearance but smaller, paler colour, and differing in sculpture. It has the general appearance of the last species, but may be at once recognised by glancing at the under surface, when the difference in the umbilicus will be at once seen.

42.—Helix ( ) Kershawi. N. Sp.

Shell small, with a deep open umbilicus, depressed, thin, shining, brown ; often marked with dark, nearly black, lines of growth, finely striated throughout with raised riblets the interstices of which are strongly decussated ; spire faintly sunk, or quite flat ; suture much impressed ; whorls $4\frac{1}{2}$, rather convex, last rounded, descending slightly in front and flattened above ; aperture triangularly-ovate ; margins distant, basal a little everted, joined by a very thin polished callus.

Diameter, greatest 3, least $2\frac{1}{2}$; height, $1\frac{1}{4}$ mil.

Habitat.—Distillery Creek and Cataract, near Launceston ; Corra Linn, River Mersey.

Variety *a.*—With black lines of growth. . *Habitat.*—Cataract, Launceston.

Variety *b.*—Spire a trifle elevate, umbilicus not nearly so open.

Habitat.—Circular Head, Table Cape, Mount Bischoff.

I have collected a considerable number of this species on the banks of Distillery Creek, under the herbage that covers the large boulders and rocks. In form and sculpture it is constant, and also in general

colouration, although occasionally specimens are to be met with on the Cataract Hill with irregular black lines of growth. It is a much flatter shell than *H. Legrandi*, and has a more open umbilicus, and is also very different in habit. *H. Legrandi* is rarely, if ever, found in greater numbers than three or four together, nestling under logs and stones in dry situations; whereas the present species is almost invariably found gregarious in large numbers, generally in company with *H. Luckmani* and *H. Hobarti*.

43.—HELIX ( ) GADENSIS—*C. E. Beddome.*

Pro. R.S.T., April, 1879.

Shell with a large perspective umbilicus equalling one-quarter of its diameter, depressed, thin, horny-yellow; whorls $3\frac{1}{2}$, slowly increasing, regularly finely striated above and below; suture deep; margins distant, joined by a very thin, smooth callus; mouth ovately-lunate; margins simple.

Diameter, greatest 2, least $1\frac{3}{4}$; height $\frac{3}{4}$ mil.

Habitat.—Gad's Hill to Mount Bischoff, found in and under decayed timber.

This is one of the four novelties discovered by Messrs. Beddome, Johnston, and Atkinson during a recent collecting trip to the North-West Coast. This species is not unlike *H. Kershawi (mihi)*, but is of a paler colour, the spire is never submerged, and the sculpture is very different.

Under the microscope, I find the nucleus ($1\frac{1}{2}$ whorls) is spirally striate, and the interstices obsoletely, transversely striate.

44.—HELIX ( ) STELLATA—*Brazier.*

Pro. Zool. Soc., 1870, page 662.

H. similis—Cox.

Mon., 1868, p. 123, pl. xii., fig. 12.

H. derelicta—Cox.

Legrand's Col. for Mon., sp. 11.

Shell deeply and perspectively umbilicated, discoid; spire depressed, chestnut-brown, not shining, regularly and finely ribbed on the upper and under surface; whorls $4\frac{1}{2}$, rounded, last whorl descending a little in front; suture deep and narrow; peristome simple, thin; aperture round; margins closely approximating; columellar margin not reflected at the base.

Diameter, greatest 0·08, least 0·07; height, 0·04 of an inch.

Habitat.—Mount Wellington, Hobart Town waterworks, about Launceston, Circular Head, Mersey river; delights in moist situations, among decaying timber and under stones.

A minute, depressed, finely sculptured form, resembles *H. Kershawi* and *H. Gadensis* but smaller than either, and the sculpture altogether much finer and more compact. If my identification of the shell is correct, the figure in Cox's Monograph is anything but good.

45.—HELIX ( ) TAMARENSIS. N. Sp.

Shell widely umbilicated, depressed, rusty-brown, indistinctly rayed with darker shade, dull; irregularly, somewhat closely striated with rounded and slightly waved striæ, interstices with very fine striæ; spire flat; suture impressed; whorls 5, convex, last rounded, a little descending, base convex, ornamented with striations the same as upper surface; umbilicus large and very open, somewhat shallow and flat at the bottom; aperture ovately-lunate, slightly flattened above; margins approaching; peristome simple, acute.

Diameter, greatest 6, least 5; height, 2 mil.

Habitat.—Rifle butts, near Launceston, in great numbers at the roots of brier bushes (R. M. Johnston).

Closely allied to *H. Legrandi (Cox)* and *H. Stanleyensis (mihi)*, but differs principally from either in its very open umbilicus and the colouration. It is individually one of the most abundant species I have met with in this island; it may literally be collected by thousands at the locality given, but, strange to say, I have not met with it elsewhere. It is so different from any described species that I do not think it a local variation.

I at first named it *H. rosaceæ*, but as there is *H. rosacea (Müll.)* I have altered it to that given above.

46.—HELIX ( ) OFFICERI—*Cox.*

Legrand's Col. for Mon., species 57.

Shell deeply, openly, but narrowly umbilicated; depressed, discoid, yellow-brown, very closely and finely striately-ribbed, irregularly and indistinctly rayed with brown; whorls 5, convex, last not descending in front; spire almost flat; suture impressed; base rounded and excavated

round the umbilicus ; aperture lunately-rounded ; peristome simple, thin ; margins much approached ; columellar margin broadly and triangularly dilated above.

Diameter, greatest 0·17, least 0·14 ; height, 0·10 of an inch.

Habitat.—North-West Bay, near the Great Lake, George's Bay (East Coast).

If I have identified this species correctly, it comes between *H. Diemenensis* and *H. Stanleyensis* ; it is much smaller than the former, with much the appearance of the latter. The specimen in my collection has $5\frac{1}{2}$ to 6 whorls, and is obsoletely, minutely decussate throughout, in other respects agreeing with the description of Dr. Cox as given above.

47.—Helix ( ) Tasmaniæ—*Cox.*

Mon., 1868, p. 22, pl. xii., fig. 4.
Legrand's Col. for Mon., sp. 14.

Shell widely umbilicated, depressed, each whorl regularly marked above with alternate dark chestnut and light segments, regularly and strongly ribbed, thin ; spire slightly raised ; whorls 5, flattened toward the suture, the last descending a little in front, base convex ; umbilicus deeply funnel-shaped ; aperture roundly-dilated, lip simple, sharp ; margins closely approaching ; columellar margin not dilated at its base.

Diameter, greatest 0·13, least 0·11 ; height 0·07 of an inch.

Habitat.—Mount Wellington, Brown's River, North-West Bay, George's Bay, Recherche Bay, Ringarooma (?).

A pretty little form of constant character, generally found in rather dry situations under stones. In form and sculpture much resembling *H. subrugosa (Brazier)*, and in colouration to the next.

48.—Helix ( ) MacDonaldi—*Cox.*

Legrand's Col. for Mon., sp. 32, pl. 1, fig. 4.

H. Juliformis—Cox (name pre-occupied).

H. Gouldi—Cox (ditto).

H. Kingstonensis—Cox.

Legrand's Col. for Mon., sp. 40, pl. ii., fig. 5.

Shell with an open funnel-shaped umbilicus, broadly discoid, yellow, marked at regular intervals with broad transverse chestnut markings ; spire flattened, very finely, closely striated with capillary riblets ; whorls

5, flatly slanting from the centre to the suture above and below, giving a crenated appearance at the periphery of each whorl, last not descending in front; peristome simple; aperture almost round; columellar margin not dilated.

Variety *a*.—Pure white, without markings.

Habitat.—Mount Wellington, Brown's River, Snug River, Launceston, Chudleigh, Mount Bischoff, near Valentine's Peak.

Somewhat resembling the preceding, but flatter, and with a wider umbilicus; the riblets are also much more compact and close. *H. Stanleyensis (mihi)* may be but a larger and more coarsely sculptured variety, but I have not met with intermediate forms. The embryonal whorls are smooth or with very fine spiral threads. A pure white variety is occasionally met with; this Dr. Cox has named *H. Kingstonensis*. I have examined the type specimen in the Museum of the Royal Society of Tasmania, and fail to discern any difference from the usual form, except colouration, although the figures in Legrand's book represent a totally different shell; there it is shown with much more coarse striæ, the umbilicus angled at its opening, and the aperture of a different form. The figures are more like *H. architectonica (Brazier)*.

49.—Helix ( ) —*Taylor*.

Quarterly Jour. Con., 1879.

H. Stanleyensis—mihi. N. Sp.

Shell with an open umbilicus, in which the whorls are freely exposed, broadly-discoidal; yellowish, occasionally white, marked very irregularly with dashes and waved streaks of reddish-chestnut, marking often quite absent; spire very faintly elevated, finely, rather closely striated with waved riblets above and below, interstices under the lens decussate, extending over the riblets; whorls $4\frac{1}{2}$, prominently rounded, last scarcely descending in front; peristome acute; aperture almost round; margins closely approaching, not dilated.

Diameter, greatest 6, least 5; height, $2\frac{1}{4}$ mil.

Variety *a*.—White, without markings.

Habitat.—Circular Head, Table Cape, Emu Bay, Torquay, Launceston, Mount Wellington, islands in Bass Straits, and Fernshaw (Victoria).

A very pretty species, having a close resemblance to *H. MacDonaldi* and a remote one to *H. Tasmaniæ* and *H. Tamarensis*. To the former it is so closely allied that it may be but a large variety; from the two latter it may be distinguished by attending to the diagnosis. At Circular Head

it is in great abundance on the rocks around the "Nut," gregarious under entangled masses of plants in company with *H. cæsus*, *H. Weldii*, and *H. pictilis*. So plentiful is it that thousands can be literally scraped together from the surface of a single block of rock, on lifting the accumulated mass of plants and leaves. I have not seen any other species in such great numbers as the present and its companion *H. cæsus*. There is a New Zealand shell having some resemblance to it, but quite specifically distinct. The nearest Australian that I am acquainted with is *H. Murrayana*, but that species differs in several respects.

Around Launceston and Hobart Town it is smaller and more sparingly met with, although it is anything but rare. In this species the embryonal whorls are striated as the rest of the shell, not smooth as in *H. MacDonaldi*.

50.—Helix ( ) mimosa. N. Sp.

Shell small, discoid, openly umbilicated, reddish-brown, irregularly rayed and blotched with pure white, which markings are more conspicuous above than below; regularly, closely striated throughout with slightly waved, thread-like striæ; spire flat; suture impressed; whorls $4\frac{1}{2}$, convex, apical, smooth, the last narrow, rounded, not descending, below striated as above and descending into the deep, open, perspective umbilicus; aperture lunate; margins approximating; columellar margin neither dilated nor reflected.

Diameter, greatest 2, least $1\frac{3}{4}$; height, 1 mil.

Habitat.—First Basin, near Launceston, among mosses on the branches and trunks of trees; Chudleigh, Gad's Hill.

A prettily marked flat species of very constant and distinct character. In form it resembles *H. Belli (Cox)* from New South Wales. but the colouration separates it from that, and in fact all its congeners. It is very rare, and requires careful looking for among the thick mosses.

51.—Helix ( ) Petterdi—*Brazier*.

Legrand, Col. for Mon., species 67.
Pro. Zool. Soc., 1872.

H. Agnewi—Cox.

Legrand, Col. for Mon., sp. 27, pl. i., fig. 8.

Shell widely umbilicated, depressly-circular, thin, dull brown, *very minutely* striated throughout with lines of growth, having a silky appearance; spire moderately elevated; suture very much impressed;

whorls 5, rather convex, last not descending, roundly convex; umbilicus nearly perspective, about one-third of the diameter; aperture oblique, roundly-lunate; peristome straight, simple, acute; margins distant.

Variety *a.*—Pure white.

Diameter, greatest 2, least $1\frac{3}{4}$; height, 1 line.

Habitat.—Huon Road, and the lower portion of Mount Wellington, on the ground in damp places. Upper Nile nr Bru Lomond

Brazier remarks of this species—"There is a pure white variety of *H. Petterdi* that may be distinguished as *H. Peroni.*" In form resembling *H. Stanleyensis (mihi)*, but differs in the want of the rays of colour so persistent in that species, in the striæ being extremely fine, almost smooth towards the apex, and in the umbilicus being more open. It also approaches *H. Tamarensis (mihi)* and *H. architectonica (Brazier)*, but is nevertheless easily separated from all. Its most important character is the extreme fineness of the satiny-like striæ. ~~I have met with it only at the locality given, where it is anything but plentiful.~~

52.—Helix ( ) architectonica—*Brazier.*

Pro. Zool. Soc., 1872.
Legrand's Col. for Mon., sp. 64.

H. Gunnii—Brazier.

Pro. Royal Soc., Tas., 1876.

H. assimilis—Brazier.

Pro. Zool. Soc., 1872.
Legrand's Col. for Mon., sp. 66.

H. spectra—Cox.

Legrand's Col. for Mon., sp. 55.

Shell rather widely umbilicated, depressly-orbicular, thin, glassy, shining, regularly and closely arcuately ribbed, the interstices with very fine striæ; spire rather elevated; suture impressed; whorls 5, moderately convex, descending a little in front; base convex, sculptured same as upper surface; umbilicus wide, rather narrow at the bottom; aperture nearly vertical, roundly-lunate; peristome simple, thin, acute; margins approximating.

Variety *a.*—Shell discoidal, spire not raised, striæ somewhat wider apart.

Habitat.—Foot of Mount Wellington, Recherche Bay (Legrand Col.), Myrtle Bank (R. M. Johnston).

This species differs from *H. Petterdi (Brazier)*, its nearest ally in form, by its coarser ribs and sculptured interstices. It also resembles *H. Stanleyensis (mihi)*; the principal difference is the want of the strong decussation so persistent in that species. I think, however, it may be but a variety, although the colouration is so totally different. It is not gregarious like that species, and is never found associated with it. I have not a typical *H. assimilis* or *H. spectra*, but the descriptions

are so much alike, and the specimens of *H. architectonica* in my collection show so much tendency to vary within a certain limit, that I have no hesitation in uniting under one specific head the three so-called species given in Legrand's work as distinct. The variety was collected at the last locality given.

53.—HELIX ( ) SUBRUGOSA—*Brazier.*

Legrand, Col. for Mon., species 68.
Pro. Zool. Soc., 1872.

Shell rather widely umbilicated, somewhat depressly-orbicular, thin, shining, reddish-horny, subrugosely and obliquely striated, interstices with striæ much finer; spire elevated very little; suture channelled or excavated; whorls $5\frac{1}{2}$, moderately convex, last flattened above the periphery in form of a furrow in front, the furrow is distinctly seen; umbilicus wide at top, equalling three-quarters of the diameter; base with striæ same as upper surface; aperture nearly diagonal, subtriangularly ovate; peristome simple; margins distant, sloping, and expanded, basal slightly thickened and reflected.

Variety *a.*—Pure white.

Diameter, greatest $1\frac{3}{4}$, least $1\frac{1}{2}$; height, 1 line.

Habitat.—Near Hobart Town, Mount Wellington, Chudleigh, Blue Tier (Simpson), Myrtle Bank (R. M. Johnston).

"Of this beautiful species I received two specimens from Mr. W. F. Petterd, collected by him near Hobart Town; it may be distinguished from any other known species by the bold projecting out of the ribs, by the interstices being of finer sculpture, and the depressed and furrowed appearance of the last whorl just above the periphery."—*Brazier.*

Very distinct. The sculpture represents *H. Mathinnæ (mihi)* in miniature by its widely separated bold striæ and striated interstices. The depression of the last whorl near the aperture is very characteristic, and renders the shell of easy recognition, for a similar feature has not been noticed in any other of our many minute forms. The striæ vary somewhat in prominence and compactness, so much so that Mr. Beddome, at one time, thought it would be advisable to create a new species for the specimens from the Blue Tier under the name of *H. Kennarleæ*, but after careful examination with a large series of examples I am confident that it is but an individual variation.

54.—HELIX ( ) DISPAR—*Brazier.*

Pro. Zool. Soc., 1870, p. 661.
Legrand, Col. for Mon., sp. 45.

Shell umbilicated, depressly-convex, arcuately, coarsely, and sharply ribbed, interstices with very fine radiating striæ, bright reddish-horny; spire conoidly obtuse; suture depressed; whorls 5 to $5\frac{1}{2}$, convex, last

rounded, not descending; base convex with radiating striæ descending into the deep umbilicus; interior of the aperture with a little oblong, white, prominent callus tooth nearly at the base; aperture vertical, semi-lunar; peristome simple, acute; margins joined by a thin callus (in some specimens it is very prominent); basal margin not reflected.

Variety *a*.—Pure white.

Diameter, greatest 0·13, least 0·11; height, 0·11 of an inch.

Habitat.—Mount Wellington, Mount Bischoff, Chudleigh, Gad's Hill, Middlesex Plains.

I first obtained this remarkable little shell at the Springs, Mount Wellington, and for years afterwards could not find a specimen, although I searched for it repeatedly; but during an excursion recently I again got it in some numbers in a deep gully about midway between the Huon road and the Springs. It seems to be very local. The toothed aperture at once isolates it from the rest of our *Helices*; it is, in fact, a character not hitherto observed in any of the vast number of described Australian terrestrial shells, or I may say Australasian (perhaps with the exception of *H. bisulcata* said to be from this island). This curious feature of the species is invariably present, but is more prominent in fully mature individuals; in other respects it presents no great deviation from the usual *faces* of our minute *Helices*, and it is closely allied in form to *H. rotella* and *H. architectonica*.

55.—Helix ( ) rotella—*Brazier*.

Pro. Zool. Soc., 1870.
Legrand, Col. for Mon., sp. 51.

Shell with a small deep umbilicus, orbicularly depressed, rather thin, shining, closely and finely striated, interstices decussated, rusty brown; spire slightly raised; suture deep; whorls $4\frac{1}{2}$, convex, last rounded, not descending in front, base convex, closely and finely striated, excavated round the umbilicus; aperture roundly-lunate; peristome simple, acute; margins distant, the basal slightly reflexed; columellar margin not reflected.

Diameter, greatest 0·19, least 0·15; height, 0·10 of an inch.

Habitat.—Mount Wellington.

A pretty little species, easily separated. Although somewhat resembling *H. dispar*, it also approaches *H. Legrandi*.

It is rare, only to be got high up the mountain at an elevation of about 3000 feet. I have not found it at any other locality, and it is apparently confined to Mount Wellington, but it is quite possible that it may exist on many of our mountains of a high altitude that have not been examined for land shells.

56.—Helix ( ) Bassi—*Brazier.*

Pro. Zool. Soc., 1871.

H. ammonitoides—Brazier.

Pro. Zool. Soc., p. 661, 1870.
Legrand, Col. for Mon., sp. 50.

H. vigens—Cox.

Legrand, Col for Mon., sp. 40, pl. ii., fig. 5.

Shell umbilicated, flatly discoid, not shining, finely and prominently, irregularly ribbed, the interstices with very fine striæ, white beneath a thin brown epidermis ; spire flat ; suture slightly impressed ; whorls $3\frac{1}{2}$, very regularly increasing, last rounded above and below ; base convex, with striæ the same as on upper surface ; umbilicus large, with the bottom flat, not very deep ; aperture oblique, roundly-lunate ; peristome simple, the thin epidermis covering it ; margins approximating.

Diameter, greatest 0·11, least 0·10 ; height, 0·05 of an inch.

Habitat.—Mount Nelson ; Domain, Hobart Town (a single specimen).

Although resembling many of our minute shells, a close examination proves it to be distinct from all ; it may be known by its flat form, white colour, thin epidermis, coarse striæ, and very shallow umbilicus. It is of exceptional occurrence, and, so far as I am aware, confined to the southern portion of the island.

57.—Helix ( ) Lottah. N. Sp.

Shell openly umbilicated, depressed, discoid, translucent, thin, white, scarcely shining, regularly rather coarsely ribbed throughout, interstices with extremely fine striæ ; spire flat ; suture moderately impressed ; whorls $4\frac{1}{2}$, slightly convex, apical ($2\frac{1}{2}$) quite smooth, last rounded, not descending in front, below with striæ as above running into the somewhat shallow, open umbilicus, which is flattened at the bottom ; aperture lunate ; peristome simple, thin.

Diameter, greatest $2\frac{3}{4}$, least 2 ; height, 1 mil.

Habitat.—Cataract Hill, near Launceston, on the under surface of large boulders.

A pure white species allied to *H. Roblini (mihi)*, but that species is finely striated throughout, and its umbilicus is not nearly so open. To *H. Bassi (Brazier)* it is so closely related that it may possibly be but a variety, but it is much smaller, has a much less shallow umbilicus, and the riblets are coarser than in its larger congener. I therefore provisionally describe it. All three are of the same habit, found on the under surface of boulders, generally in rather dry situations, and all are extremely rare.

58.—Helix ( ) Roblini. N. Sp.

Shell small, deeply and narrowly umbilicate, discoid, pure white, finely, very closely and regularly striated above and below, striæ abruptly terminating at the apical whorls (1½ to 2), which are distinctly spirally striate; spire flat; whorls 4½, slowly increasing in size, last rounded; suture deeply excavate; aperture roundly lunate, not descending in front; margins distant, joined by an extremely thin deposit of callus; columellar not dilated.

Diameter, greatest 2¾, least 2; height 1 mil.

Habitat.—Distillery Creek, near Launceston.

Of very rare occurrence, attached to the under surface of stones in moist places. Easily known by the sudden termination of the fine striæ on the embryonal whorls, where it is replaced by minute spiral lines. It is much more minutely sculptured than the two preceding.

59.—Helix ( ) Barrenensis. N. Sp.

Shell small, bi-concave, discoid, thin, regularly, somewhat closely ribbed, and under the lens strongly decussate, embryonal whorl smooth, horny-brown; spire much submerged gradually; whorls 5½, last rounded, base with ribs as above; umbilicus widely open, shallow, freely exposing the whorls; aperture vertical, semi-lunar, faintly flattened above; peristome simple.

Diameter, greatest 2, least 1¾; height 1 mil.

Habitat.—Furneaux Group, Bass Straits (R. M. Johnston); Emu Bay (?)—a single specimen.

On the islands comprised in the Furneaux Group it is invariably found gregarious, gathered together in shallow depressions on the sand dunes with *H. Furneauxensis and H. pictilis.*

Very closely allied to *H. lirata (Cox)* from New South Wales, but differing in the riblets being more numerous, greater number of whorls, and the spire showing greater submergence.

60.—Helix ( ) Hookeriana—*R. M. Johnston.*

Pro. R.S.T., April, 1879.

Shell minute, planorbiform, bi-concave, somewhat openly, perspectively umbilicated; whorls 4½, obliquely, arcuately striate, compressed, with alternate bands of red and brown, preceding whorls sunk in and closely embraced by the last, the base being rather more deeply submerged and the upper surface shallower and more openly perspective;

aperture almost linear-lunate; labrum thin, obliquely produced towards periphery and slightly inflated, forming a narrow groove at the suture; angle of periphery faintly dilated into an obsolete keel.

Diameter, maj. 1·25 mil, min. 1·15 mil.; height, 0·3 mil.

Habitat.—Inyforth Creek, Surrey Hills, on trunks of dead trees, under moss, and in the deep shade of myrtle and sassafras foliage—*Fagus Cunninghami* and *Atherosperma moschata.* Rare.

Only four specimens of this unique little shell obtained. It approaches *H. Barrenensis (Petterd)* in size and form, and *H. Luckmani (Brazier)* in colouring and sculpture. The colouration also approaches *H. mimosa.*

61.—Helix ( ) Otwayensis—*mihi.*

Quarterly Jour. Con., 1879.

Shell small, imperforate, thin, orbicularly-depressed, pale chestnut colour, finely, closely ribbed throughout, interstices minutely decussate; spire almost flat, apex smooth; whorls 5½, convex; suture much impressed; last whorl rounded, base convex, striæ as above; aperture ovately-lunate; margins distant, joined by a thin, shining callus; columellar margin slightly thickened, peristome simple.

Diameter, greatest 2, least 1½; height, 1 mil.

Habitat.—Cape Otway scrubs, Victoria, Australia.

Variety *a.*—*Alpina*—Exactly same as typical specimens from Victoria, but much larger.

Habitat.—Surrey Hills.

A pretty little shell allied to *H. sericatula* from New South Wales and *H. limula.* "Two specimens obtained among the collection made by T. R. Atkinson and myself in the vicinity of Surrey Hills, nearly 2000 feet above the sea level. It is nearly twice the size of its Victorian representative, and the sculpture is proportionately coarser. On this account, and as it is new to Tasmania, I propose *alpina* as the name of the variety. This adds another to the number of species common to Victoria and Tasmania, and will be interesting to those who are investigating the distribution of our island fauna" (*R. M. Johnston*).

62.—Helix ( ) Bischoffensis—*C. E. Beddome.*

Pro. R.S.T., April, 1879.

Shell imperforate, flatly globose, whitish brown, very finely striated, the striæ being crossed with very fine lines, giving the shell a granulated appearance; spire roundly depressed; whorls 6½, slowly increasing,

rounded, descending ; suture impressed ; aperture semi-lunar ; peristome slightly thickened and reflected ; columellar smooth.

Diameter, greatest $2\frac{1}{4}$, least 2 ; height 2 mil.

Habitat.—Gad's Hill and Mount Bischoff, found under timber.

Closely allied to preceding, but more conical, and the granulated striæ is of a much finer texture. In form it is not unlike a minute *Streptaxis.*

The term "flatly globose," used by Mr. Beddome, is scarcely expressive : the shell is globose, with a somewhat flattened base. The callus joining the margins of the aperture is also peculiar : it is smooth, shining, dark, conspicuous, arcuately produced beyond the overhanging lip, and reflexed over the perforation in the shallow cavity of the base. The last whorl does *not* descend in front in the specimens examined by me. The nucleus, of two turns, is spirally striate.

63.—Helix ( ) Dyeri. N. Sp.

Shell small, imperforate, depressedly discoid, thin, very highly polished, finely irregularly striated with lines of growth above and below, glassy yellow, with irregular, more or less distinct, rays of reddish chestnut ; spire depressed, small ; whorls $3\frac{1}{2}$, flatly slanting outwards, last whorl much distended, not descending in front ; suture faintly impressed ; aperture lunately-ovate ; margins faintly approaching, joined by a rather thick deposit of callus ; columellar margin dilated, entirely covering the perforation.

Diameter, greatest $3\frac{1}{2}$, least $2\frac{1}{2}$; height, $1\frac{1}{2}$ mil.

Habitat.—In the thick mass of vegetation growing on the banks of Distillery Creek, near Launceston ; Corra Linn, Leven River, North Coast (one specimen), Chudleigh, Middlesex Plains, Mount Bischoff.

Under the lens a very pretty glossy species, that cannot possibly be mistaken for any other. Its nearest ally is *H. Nelsonensis*, from which it differs in being imperforate, and more often rayed with chestnut markings. It is, like the great majority of land shells, a moist-loving species, and is very rarely met with.

I have named it in honour of my friend Mr. B. Dyer, a great lover of shells.

64.—Helix ( ) Nelsonensis—*Brazier.*

Pro. Zool. Soc., 1870, p. 664.
Legrand, Col. for Mon., species 44.

H. fulgetrum—Cox.

Legrand, Col. for Mon., sp. 31, pl. i., fig. 11.

Shell umbilicated, depressed, discoid, very thin, obliquely and finely striated, glossy, rich tawny yellow ; spire slightly elevated, apex obtuse ;

whorls $3\frac{1}{2}$, last increasing, convex, slightly depressed above at the mouth, inflated outwardly, slightly descending in front, base convex, faintly marked with indistinct striæ of a reddish-horn colour : umbilicus moderately large ; aperture nearly diagonal, almost ovately-lunate ; peristome simple, thin ; margins approximating, right flexuous, basal slightly reflected at the columellar.

Variety *a.*—Striated with red or chestnut.

Variety *b.*—Shell exactly double the dimensions of typical.

Diameter, greatest 0·15, least 0·11 ; height, 0·06 of an inch.

Habitat.—Mount Nelson, Recherche Bay, Port Davey, Brown's River ; Distillery Creek and Cataract, near Launceston ; River Leven, Blue Tier (A. Simson), Chudleigh, Gad's Hill, Middlesex Plains, Lake Lea, Surrey Hills, Mount Bischoff.

A glassy, highly polished little shell, and on that account not to be gasily mistaken for any other species. Generally of a clear yellowish-creen colour, although it is often met with more or less rayed with ehestnut and red. Southern specimens are in general smaller than those I have collected in the vicinity of Launceston. In general aspect it comes near *H. Dyeri (mihi)*, but that shell is not umbilicated, therefore it cnanot be well mistaken for it. Allied to *H. splendidula (Pfr.)* from New South Wales and southern Queensland, and northern examples, from their large size, have very much the aspect of that species. This is one of several instances of the larger size or greater development of many of our land shells in the north to what they normally attain in the south. Several other instances could be cited, more especially *H. Stephensi*, *H. ruga*, and *H.* ~~*Wellingtonensis*~~. *Diemenensis*

65.—Helix ( ) antialba—*C. E. Beddome.*

Pro. R.S.T., April, 1879.

Shell umbilicated, concave on both sides, thin, covered with thread-like riblets, not shining, white to brown ; spire deeply concave, nearly meeting the umbilicus ; whorls $6\frac{1}{2}$, slowly increasing, convex, last rounded, higher than broad, below ribbed as above ; umbilicus perspective, deep, about one-third of the diameter of shell ; aperture semi-lunar ; peristome simple ; columellar margin smooth and shining.

Variety *a.*—Brown.

Diameter, greatest $2\frac{1}{2}$, least 2 ; height, 1 mil.

Habitat.—Gad's Hill and Mount Bischoff, found in and under

decayed timber. At the latter locality the brown specimens were got.

This is a very interesting nautiliform, bi-concave species; it is one of the most peculiar of our smaller forms. It resembles, in miniature, *Diplomphalus Magei (Lambert)* from New Caledonia. Pure white specimens are quite as often found as the brown. The riblets and interstices are obsoletely, transversely striate under the microscope, and the nucleus flat, smooth, and shining.

66.—HELIX ( ) SUBANGULATA—*Pfr.*

Pro. Zool. Soc., 1854, p. 53.
Mon. Hel. Viv., vol. iv.
Reeve, Conc. Icon., sp. 1301.
Cox, Mon., 1863, p. 12, pl. IX., fig. 6.
Legrand, Col. for Mon., sp. 13.

Shell umbilicated, convexly-depressed, rather solid, finely striated, scarcely shining, waxy, ornamented with a narrow chestnut band near the suture and two broader ones (three in Reeve's fig.) beneath the periphery; spire short, convex, obtuse; whorls $4\frac{1}{2}$, slightly convex, gradually increasing, last not descending; periphery slightly angled, base rather flat; aperture oblique, of a rounded-squarish form; peristome simple, straight, with margin nearly parallel, the columellar being expanded near the umbilicus, which is of a moderate size and open.

Diameter, greatest 0·64, least 0·50; height, 0·45 of an inch.

Habitat.—Van Diemen's Land *(Pfeiffer)*.

This shell is quite unknown to Tasmanian or Australian collectors, and so far as present investigation has gone nothing bearing even a remote resemblance to it has been discovered in this island, although it would be rash or premature to definitely state that it does not exist, for there are still many parts as yet quite unexplored, or at least unvisited by recent investigators. In some respects it has a remote resemblance to the young stage of the common and generally dispersed *Bulimus Dufresni*, although I do not for a moment suppose it to be an immature specimen of that species. It may, however, yet be re-discovered, although I have great doubts, and rather think that some error has been made in the habitat as recorded by *Pfeiffer*.

In markings it has some resemblance to *H. conscendens (Cox)* from New South Wales, and to *H. fucata (Pfr.)* from Queensland, but both these species are imperforate and globosely-conical.

INTRODUCED SPECIES.

67.—HELIX ( ) CELLARIA—*Müller.*

H. Sydneyensis—Cox.

Mon. 1868, p. 9, pl. IX, fig. 16, and pl. XVIII, fig. 3, 3*a*.
Legrand, Col. for Mon., sp. 63.

A depressed, transparent, highly polished shell of a yellowish colour. It is a well-known abundant European species, and a great wanderer; it has become acclimatised in many widely distant parts of the world. Mr. J. S. Gibbons states (*Quarterly Journal of Conchology*, August 1878) that it is thoroughly settled in St. Helena, Madeira, and the Cape of Good Hope: in the latter place it appears to have become wonderfully prolific, for he states—"I never saw *H. aspersa* so abundant as near Cape Town, while *Z. cellarius* occurs literally in hundreds in the space of a few square feet near a waterfall."

I have collected it abundantly in Launceston and Hobart Town in cellars, yards, and such like places. In Sydney, New South Wales, it is also very plentiful, and I have received large numbers from Auckland, New Zealand, so that we may look upon it as thoroughly settled in Australia.

Mr. C. E. Beddome informs me that he recently placed some living specimens of the well-known garden snail of Europe, *Helix aspersa*, in a gully on his property in Queenborough. So that, possibly, in a few years we will have it as plentiful about Hobart Town as it has become in the vicinity of Melbourne, Victoria. If a desirable acquisition or not I am not prepared to say. I may state that in Victoria *Bulimus acutus* and a small *Planorbis* have become acclimatised. In all probability the land snails were introduced in mould with plants, but it is difficult to account for the introduction of a fluviatile species, as in the case of the *Planorbis*.

68.—HELIX ( ) PULCHELLA—*Müller.*

H. Alexandræ—Cox.

Cox, Mon., 1868, p. 61, pl. vi., fig. 1.
Legrand, Col. for Mon., sp. 16.

A minute neat shell of almost smooth texture and beautifully clear white, with a thickened peristome. Introduced from Europe, where it is very abundant and widely dispersed, into Sydney, N.S.W., and Hobart Town. At the latter it has become plentiful in and about gardens, and may be frequently met with in flower-pots, generally in considerable quantity. This pretty little species is pre-eminently a wanderer, for it is not only found throughout the whole extent of the European Continent but is also plentiful in Northern Asia, Madeira, &c.; it also,

according to Mr. Hemphill *(Quarterly Journal of Conchology*, February 1876), has been obtained in various parts of Northern America, and that investigator obtained it quite abundantly at the White Pine mining district of Nevada, at an elevation of 8000 feet. It is an open question as to whether it has been introduced into that country, or is indigenous. Mr. Brazier informs me that he found it at Norfolk Island in 1865 in great plenty, under stones and loose wood in the old Gaol yard, and conjectures that it and others that have become so thoroughly acclimatised throughout Australasia, were in all probability introduced in cases with plants.

Another European species has been introduced into New South Wales; it is the *Helix nitada (Müller)—Cox, Mon, 1868*—and also *Bulimus junceus (Gld.)* from the New Hebrides. It is well to note these alien acquisitions to our terrestrial mollusca, as in course of time they may modify or supersede the indigenous forms. I may state that two of the most abundant freshwater shells in this island are introduced European species, viz., *Limnæa peregra (L. Hobartensis—Tenison-Woods)* and *Limnæa stagnalis (L. Tasmanicus—Tenison-Woods).*

Genus—BULIMUS—*(Scopoli.)*

Shell oblong or turreted; aperture with the longitudinal margins unequal, toothless or dentate; columellar entire, revolute externally, or nearly simple; peristome simple or expanded.

Animal like *Helix.*

Bulimi are found in most parts of the world, the largest and most beautifully coloured in the tropics. There are nineteen species enumerated as Australian.

1.—Bulimus ( ) Dufresni—*Leach.*

Mis. Zoo., p. 153, pl. cxx.
Wood, Index Testa., Hanley, 1856. pl. vii, fig. 28.
Conc. Icon., Reeve, sp. 219.
Chenu, Manual Con., vol. 1, p. 438, fig. 3224.
Legrand's Col. for Mon., sp. 1.
Helix—Dufresni.
Fer. Hist., pl. cxiii., fig. 1-3.

Shell imperforate, ovately oblong, rather solid, shining and almost smooth, although marked with longitudinal, irregular, rugose lines of growth, and faintly granulate all over, dark maroon-brown, encircled by a narrow dark-brown, almost black, spiral band, flanked by much paler ones; spire obtuse; suture crenulated below; whorls 5, slightly convex; aperture oval, very slightly oblique, pale violet-brown within; peristome

simple, moderately thickened, rounded at the edge; right and basal margins regularly and moderately acute; columellar margin partially twisted in the centre, and above slightly expanded and adherent.

Length 50, breadth 26; length of aperture 23, width 12 mil.

Habitat.—Mount Wellington (part), Blue Tier, banks of Rivers Leven and Forth, Scottsdale, Mount Arthur, vicinity of Circular Head; in moist, densely-timbered scrubs.

I have taken the largest specimens as the typical of the species. The measurements given are but approximate, for it is often met with of somewhat greater development, and again gradually merges into variety *a*.

Variety *a*.—Shell ovately globose, colouring and markings as above, occasionally with a greenish appearance pervading the shell; spire short; often with a more or less distinct sinus near the suture.

Length 33, breadth 21; length of aperture 17, width 9 mil.

Habitat.—Ringarooma, Macquarie Harbour, Port Davey, Table Cape.

For figures of this form see *Pro. Lin. Soc. N.S.W.*, vol. 3, pl. vii., figs. 4 and 6*a*. The latter is but a *very* immature specimen, not nearly full-grown, as are some of the other specimens figured on the same plate.

Variety *b*.—Shell narrowly ovate, rather attenuated toward the apex; colour variable—greenish-yellow to dark brown—with more or less intense longitudinal markings of a paler colour, encircled by two greenish-yellow bands, bordering one of dark maroon-brown, beneath spiral bands generally of a darker shade than the rest of the shell, gradually fading to yellowish-green at the base.

Approximate measurements—length 32, breadth 15; length of aperture 13, width 8 mil.

Habitat.—Widely distributed.

The most abundant and variable form of the shell.

Variety *c*.—Shell ovate, thin, attenuate towards apex, which is somewhat acute; pale yellowish-brown, one band of same colour beneath a zone of dark brown, beneath band dark brown to base, suture crenulated with yellow.

Length 25, breadth 13; length of aperture 12, width 8 mil.

Habitat.—Swansea, East Coast *(Legrand)*.

A thin, pale variation of peculiar markings.

Variety *d.*—Shell narrowly-ovate, thin, attenuate towards apex; pale greenish-yellow throughout, zoned by two bands, the upper and widest intense dark brown, lower of much paler tint.

Length — ; breadth — ; length of aperture — ; width — mil.

Habitat.—Back of Cataract Hill, near Launceston.

This pale-green form is found in dry situations, and is very rare.

Variety *e.*—Shell ovately globose, rather thin, finely granulate throughout, spire short, rather acute; greenish-brown shading to greenish-yellow toward the base, zoned with three (3) wide, intensely dark, almost black, bands.

Length 25, breadth 15; length of aperture 13, width 8 mil.

Habitat.—Pattersonia, near Launceston.

By far the most elegant variety that I have hitherto met with; the three dark zones are very conspicuous.

Variety *f.*—Shell ovate, zoned as preceding, but covered more or less, sometimes almost entirely, with a yellow, golden periostrica.

Length 25, breadth 13; length of aperture 11, width 7 mil.

Habitat.—Rocher's Creek, George Town road.

A curious variation, only collected at the above locality. All the specimens have the golden periostrica, in many cases totally obliterating the general colouration of the shell.

This is the most abundant land shell in the island, and at the same time subject to the greatest amount of variation both as regards colouration, size, and even form, according to the more or less favourable location for its development. I have enumerated most of the conspicuous variations that I have met with, but almost all intermediate grades are to be obtained, although varieties *d.* and *e.* are very distinct from the others. It adapts itself to all circumstances, and is apparently as much at home on dry rocky hills as on the moist banks of the streams, or in the dense fern-tree and myrtle scrubs. In dry situations it is stunted in growth, and is then generally more highly-coloured and attractive in appearance, although under all circumstances it is a fine and conspicuous species, and always the first to attract attention. The Rev. Mr. Woods says (*Pro. Lin. Soc. N.S.W.*, vol. iii., page 89)—"I have seen a shell of a pink-white with only one deep purple-brown narrow band: no other band or colour." Specimens of this colouration I have often met with, but *invariably* dead specimens that have been long exposed to atmospheric influences. Mr. Legrand notes a black variety: this I certainly have *never* seen. The egg is hard-shelled and white; when the young first issues from it, the shell is sub-orbicular in form, and of pale colour and brittle texture. The arrangement of the

teeth on the lingual membrane is of the ordinary *Bulimi* type and character. Mr. Legrand remarks—"This species has been found fossilized in the tertiary formation of the North Coast." In this I feel confident there is an error, for in the tertiary formation at Table Cape only marine species of shells have hitherto been met with, nor is it likely it will be met with in these beds.

In this case, as in some others, I have not given a list of all the works in which this and the other species are referred to, but I think quite enough are mentioned for all practical purposes.

The nearest Australian approach in form to this species is *Bulimus indutus*, and in colouration *B. Angasianus*, but both are, however, very distinct; in fact it is so totally different that no other form can possibly be confounded with it.

2.—Bulimus ( ) tasmanicus - -*Pfr.*

Pro. Zool. Soc., 1851, p. 260.
Cox, Mon. 1868, p. 72, pl. xiii, fig. 1.
Legrand's Col. for Mon., sp. 2.

Shell imperforate, conically-ovate, rather solid (sometimes very light and thin), translucent, with little lustre, flatly and rather coarsely longitudinally striated, whitish, originally covered with a reddish-brown epidermis, often remaining as long close streaks along the lines of growth, but frequently entirely absent, when the surface may have a dull chalky appearance; spire reddish, and papillary at the apex; whorls 5, slightly convex, last nearly thrice the length of the spire, rounded at the base; aperture very slightly oblique, of a rather lengthened oval; pale yellow within; peristome simple, straight, thin; columellar margin very slightly rolled back.

Variety *a.*—Longitudinal markings black.

Length 1·10, breadth 0·60; length of aperture 0·65, breadth 0·40.

Habitat.—Near the sea, clustering on small trees and shrubs.

Found nearly all round the coast line, generally on sandy ground or hillocks a little above high-water mark. It is almost invariably in great profusion, gregarious, and clustering together, more especially on the boobyallas and stunted wattles; it has been got on the exposed rocks near the sea on Bruni Island. Specimens kindly given me by my friend Mr. B. Dyer, and said to have come from Spring Bay, on the East Coast, are much darker than the ordinary form, the longitudinal markings being of an intense black, and with a somewhat silky lustre.

It is closely allied to *B. Kingi* from King George's Sound, and is, I believe, of the same peculiar habit. It is the largest of our few arboreal land mollusca. The fossil *B. Gunni*, from the travertin near Hobart Town, is very closely allied, and may, in fact, be the same species a little modified by time.

Genus—SUCCINEA—*(Drapernaud.)*

Shell imperforate, thin, ovate or oblong; spire very small; aperture large, obliquely oval; columellar simple, acute, straight; peristome simple, acute, straight. Animal amphibious, large, heliciform; tentacles short and thick, upper ones of even thickness toward the apex, thence attenuated; foot broad, lingual teeth like *Helix*. *Succinea putris* has 50 rows of 65 teeth each.—*Thomson.*

Inhabits damp places, but rarely enters the water. About twelve known Australian species. All the species are closely allied to each other, and very possibly the number will require reduction.

1.—Succinea Legrandi—*Cox.*

Legrand, Col. for Mon., species 2.

Shell rimate, thin, transparent, smooth, of a dark horny-yellow, shown with transmitted light; whorls 4, the first three, forming the apex of the shell, are small and rounded, the last proportionately, enormously dilated and inflated, forming three-quarters the length of the shell; aperture large, oval; peristome continuous; margins joined by a callus; columellar margin dilated and expanded over the perforation.

Length 0·23, breadth 0·12 of an inch.

Habitat.—Kangaroo Point, near Hobart Town; George's Bay (?).

Allied to *S. Eucalypti*, from New South Wales and Southern Queensland.

2.—Succinea Australis—*Ferussac.*

Hist. Moll., pl. xii., fig. 2.
Cox, Mon., 1868, p. 88, pl. xv, fig. 7, 7*a*.
Legrand's Col. for Mon., sp. 1.

Shell ovately-conical, thin, rugosely striated, pellucid, pale horny, sometimes marked with darker streaks; spire conical, acute; whorls $3\frac{1}{2}$, convex, last forming two-thirds of the length; columellar sub-callus, somewhat slightly receding; aperture acuminately oval, incumbent; peristome simple, straight.

Length 0·47, breadth 0·32; aperture 0·32 long, 0·20 broad, of an inch.

Habitat.—Widely dispersed; also islands in Bass Straits.

When met with it is generally in moist places and in some considerable numbers. It is generally constant in character, although variations are sometimes met with. A specimen kindly lent me by Mr. A. Simson, got at George's Bay, is of a pale horny-green with streaks of brown. It is perhaps but a variety of the Australian *S. strigata (Pfr.)*.

Variety—*Queenboroughensis.*

Shell ovate, thin, pellucid, very shining, ventricose, rich horny-brown, with the apex tinged reddish ; spire small ; whorls $3\frac{1}{2}$, rounded, last whorl much inflated ; aperture ovate.

Length $11\frac{1}{2}$, breadth 8 ; aperture, long 7, broad 5 mil.

Habitat.—Queenborough (C. E. Beddome).

Possibly a distinct species. A specimen from Ringarooma exactly corresponds in size and form, but is of a greenish-horn colour, with the apex tinged pink. Closely allied to the Australian *S. arborea.*

Variety—*Tamarensis.*

Shell ovately acuminate, very thin, shining, yellow-horn, apex tinged darker shade, when living thickly encrusted with mud, longitudinally striate ; spire attenuate, acute ; whorls $3\frac{1}{2}$, flatly convex, last oblique ; aperture oval ; peristome simple, acute, very thin.

Length 13, breadth $7\frac{1}{2}$; aperture, long 8, broad 5 mil.

Habitat.—Tea-tree swamp, bank of Tamar river, near Launceston.

This also is probably a distinct species, but I hesitate ranking it as such until further observation. Collected on the mud and about the roots of the Tea-tree. Allied to the European *S. Pfeifferi.*

Genus—VITRINA—*(Drapernaud.)*

Shell imperforate, very thin, pellucid, hyaline, depressed ; spire short ; whorls 2 to 3, rapidly enlarging ; aperture large, lunate or rounded ; columellar margin slightly inflected ; peristome thin, often membranous.

Animal elongated, too large for complete retraction into the shell ; mantle produced, transversely rugose, covering the front edge of the last whorl and part of the spire of the shell, and furnished with a posterior lobe on the right side. Mandibles arcuate, rostrate ; lingual teeth (of type *Vitrina Drapernandi),* 100 rows of 75 each ; marginal teeth with a single, long, re-curved apex.—*Thomson.*

The Australian and Tasmanian belong to the division *Helicarion.* About seventeen Australian species recorded.

1.—Vitrina ( ) Verreauxi—*Pfr.*

Pro. Zool. Soc., 1849, p. 132.
Reeve, Conc. Icon., sp. 21.
Cox, Mon., 1868, p. 83, pl. xiv., fig. 14, 14*a*.
Legrand, Col. for Mon., sp. 2.

Shell depressly-auriform, thin, diaphanous, slightly shining, smooth (pale greenish-yellow to deep orange), frequently rugosely striated at the

suture, faintly elsewhere ; spire nearly flat ; suture impressed, narrowly marginate ; whorls 3, the last depressed above, produced, rounded at the periphery and below ; aperture diagonal, lunately ovate ; peristome simple, sharp, right margin curved forwards, then gradually rounded to the columellar, which is (generally) membranous.

Diameter, greatest 0·55, least 0·45 ; height 0·17 ; aperture, 0·40 long, 0·35 broad of an inch.

Habitat.—Generally distributed ; islands in Bass Straits ; also Victoria, Australia.

To be met with everywhere, both in dry as well as moist situations. It varies considerably in size, and specimens from Recherche Bay approach *V. Milligani* in size and colour *(Legrand)*.

I have collected it high up Mount Wellington, at an elevation of over 3000 feet. In Victoria it is abundant, especially in Gipps Land, and exactly corresponds with specimens from this island.

2.—VITRINA ( ) MILLIGANI—*Pfr.*

Pro. Zool. Soc., 1852, sp. 56.
Reeve, Conc. Icon., sp. 18.
Cox Mon., 1868, p. 82, pl. XIV., fig. 2, 2*a*.
Legrand's Col. for Mon., sp. 1.

Shell depressly-ovate, rather solid, polished, very glossy, translucent, olive black ; spire convex ; whorls 3, second convex, last depressly-rounded ; aperture more oblique than diagonal, lunately rounded-oval, within coloured as without ; peristome simple ; right margin dilated forwards, anterior regularly and columellar slightly arched.

Diameter, greatest 0·83, least 0·60 ; height, 0·35 ; aperture, 0·45 long, 0·45 broad of an inch.

Habitat.—Macquarie Harbour.

This is really a beautiful and fine shell, with an extremely highly-polished lacquered appearance. It is confined to the western portion of the island. Cox remarks in "Monograph Australian Land Shells" that it "resembles in a most striking manner very young specimens of *Helix Busbyi* of New Zealand." In Australia the only species with any resemblance to it is *Helix attramentaria (Shuttleworth)* from the Dandenong Range, Victoria. The likeness is far more noticeable in young immature specimens of that shell than in fully developed ones ; then it is at once seen that they are very distinct, although of the same colour and peculiar texture.

3.—VITRINA ( ) FUMOSA—*Tenison-Woods.*

Pro. Lin. Soc., N.S.W., vol. III., p. 124, pl. xii., fig. 3, 3*a*.

Shell umbilicate, turbinately discoid, rather thin, highly polished, uneven from the lines of growth, intensely smoky, horn color or nearly black throughout except at the apex, translucent ; spire somewhat exsert, with the apex very slightly prominent; suture very finely corrugated ; whorls $3\frac{1}{2}$, increasing rapidly, embryonal $1\frac{1}{3}$, whitish, last whorl largely rounded and sloping ; aperture almost orbicular ; peristome horny, obtuse, incurved, margins disjoined from the umbilicus for about one-third of the last whorl ; columellar acute, sloping ; umbilicus very narrow and deep.

Diameter, greatest 22, least 14 ; height, 18 mil.

Habitat.—Duck River, Montagu River, Mount Bischoff.

I discovered this shell in the dense fern-tree scrubs of the Duck River crawling among the decaying leaves on the ground. The animal is somewhat active, and of a bright-red colour. It is in all probability but a variation of the last species, and its perforation still further links it to *Helix attramentaria*, the animal of which is also of the same colour. Professor Ralph Tate is also of the opinion that it is but a variation of the preceding ; and Professor F. W. Hutton thinks that both, if to be looked upon as distinct, should be more properly placed in the genus *Peryphanta.* The *Helix urnula (Pfr.)* from New Zealand exactly resembles it in form, but the surface of the shell is ot quite a different structure—that being of a wrinkled, decussate character, whereas the present is highly polished and only slightly uneven with lines of growth. Lingual membrane large, teeth of much the same form and arranged on the same plan as in *Helix lampra* and allies.

Section B.—OPERCULATA.

PNEUMONOPOMA.—*Pfeiffer.*

Terrestrial Mollusca, breathing air by lungs, and furnished with an operculum attached to the foot of the animal, by which it closes the aperture of its spiral shell.

All the animals of this Order strongly resemble each other in structure, by which, besides the operculum, they are easily distinguished from the other terrestrial Mollusca—*Limacidæ*, *Helicidæ*, &c. The sexes are strictly distinct, never hermaphrodites, as in the *Helices*, and the animals bear two contractile (not retractile) tentacles, at whose posterior or exterior bases the eyes are placed. In some the mantle margin is free, by which character Ferussac distinguished the *Helicidæ* from the *Turbines;* in others the mantle is entirely within the shell.

Sub-Order I.—OPISOTHALMIA.—*Pfeiffer.*

Eyes placed on the upper part of the head, behind the base of the subulate tentacles; foot rather short.

Family I.—ACICULACEA.—*Pfeiffer.*

Operculum thin, spiral, few whorled.

Genus—TRUNCATELLA.—*Risso.*

Shell minute, imperforate, turreted, adult always truncated, subcylindrical, smooth or ribbed; aperture oval or elliptical, entire; peristome continuous, straight or slightly expanded, simple or duplicate; operculum thin, horny, hardly sub-spiral, nucleus basal.

Animal.—Tentacles two, short, triangularly diverging, cylindrical, obtuse; eyes centrally behind; foot short, rounded at each end; head proboscidiformed, bi-lobed, by which and the short foot the animal is enabled to creep.

Found abundantly on the rocks and sea-weeds between tide-marks, and the dead shells are often washed together in vast quantity. There are seven described Australian species, three of which are found on the islands in Bass Straits.

1.—Truncatella scalarina—*Cox.*

Pro. Zool. Soc., 1867, p. 40.
Mon., p. 95, pl. xv., fig. 10, 10*a*, 10*b*.
Tenison-Woods, Census Marine Sh., Tas., 1877.

Shell imperforate, fusiformly turreted, smooth, shining, white; spire decollated; suture constricted; whorls 4 at the least, convex, strongly longitudinally and regularly ribbed, last equalling in length the three

preceding ones; aperture oblique, oblongly-ovate; peristome continuous, free, callus, expanded, especially above, exhibiting underneath a bi-labiated form; right margin curved, rounded below; superior margin nearly straight; operculum (?).

Length, 0·23; breadth, 0·11 of an inch.

Habitat.—Port Lincoln, South Australia; islands in Bass Straits.

Said to occur in a semi-fossil state only in South Australia. On the islands in Bass Straits it is very abundant, in company with our other two (?) species. Neither this, nor either of the other species, has been observed on the mainland, and all appear to be confined to the Straits.

2.—Truncatella Tasmanica—*Tenison-Woods.*

Pro. Royal Soc. Tas., 1875.
Census Tas. Marine Shells, 1877.

Shell decollate, cylindrically turreted, small, thin, shining, pale fulvous; whorls 5 (if not decollate), somewhat convex, furnished very thickly with small subacute plaits (in last whorl 30·35); aperture pyriform, angulate and sulcate above; outer lip bi-marginate, sub-expanded; lip reflected; peristome continuous.

Long. 7, lat. 3 mil.

Habitat.—Islands in Bass Straits.

This shell has been obtained in great profusion, particularly in the Furneaux Group. Mr. Woods remarks of it "The plaits or ribs on the shell are very like those on most *Scalaria.* For my own part I think it very difficult to distinguish the species from *T. teres (Pfr.), T. scalarina, T. Yorkensis,* and *T. Brazier,* the last three of Dr. James Cox."

Possibly but a variety of the last species.

3.—Truncatella marginata—*Küster.*

Mon., p. 12, sp. 8, pl. ii., fig. 24-26.
Cox, Mon., p. 92, pl. xv., fig. 8, 8*a* 8*b*.
Tenison-Woods, Census Tas. Marine Shells, 1877.

Shell sub-rimate, cylindrical, gradually attenuating upwards, rather thin, shining, amber colour or pale yellow; suture margined, furnished with papillæ-formed folds; whorls in the adult state 4 to $4\frac{1}{2}$, rather convex, last with folds at the base, very shortly or obsoletely crested; aperture vertical, angularly-oval, somewhat broad at the base; peristome continuous, thin, rather expanded.

Obs.—Young shell turreted, apex acute; whorls 8, swollen, ribbed above, last obtusely-angled.

Length 0·25, breadth 0·09; aperture about 0·07 of an inch.

Habitat.—Port Lincoln, South Australia; islands in Bass Straits.

Obtained in vast quantity at high-water mark with the preceding, and with it used by the islanders for making necklaces, which are sent in great numbers to Launceston and Hobart Town for sale. The making of the necklaces of these shells and a small species of *Elenchus*, *E. irisodontes*, is one of the principal means of support of the half-caste aboriginal people living upon the islands in the Straits.

4.—Truncatella micra—*Tenison-Woods.*

Pro. Royal Society of Victoria, 1877.

Shell minute, white, translucent, cylindrical; whorls 4 (decollate), irregularly costately striate, inflatedly convex; suture impressed; aperture small, semi-lunar, outer lip reflexed.

Long., $4\frac{1}{2}$; lat., $1\frac{1}{2}$ mil.

Habitat.—Brighton, Victoria (*Kershaw*); Furneaux Group, Bass Straits.

"There are so many *Truncatellæ* described which run so closely to each other that I hesitate to add this species. It seems, however, to differ widely enough from all known to me to warrant my giving it a name."—*Woods.*

The shell corresponding to the above description is very plentiful at the locality mentioned, but I cannot see any specific difference between it and the preceding species. The species described are so much alike that new species should be very cautiously accepted; in fact, I must admit that I cannot separate them with any satisfaction.

ADDITIONAL NOTES.

Sp. 19.—I am informed by Mr. C. E. Beddome that Pfeiffer, in his Mon. of the genus *Helix*, records a species described under this specific name, as follows—*H. Vitrinæformis, Mouss (Nanina), Pätel Catal., p. 85.* In all probability this has priority over the species named by Dr. Cox. Should such be the case, I propose to term it *H. Buttoni.* In the "Science Gossip" for March, 1879, Mr. Legrand states that the type specimens of this species were got by a Mr. Longley. I believe he is in error.

Sp. 31.—This form has been detected, in a fossilised condition, in the *Helicidæ sandstone* of Barren Island, Bass Straits, by Mr. Johnston. The specimens differ from the typical in a trifle more elevation of the spire.

(A Supplement to this List will be published when necessary.)

Bulimus Lafresni
Var g- Shell openly perforated
Nat. Feb. of Bay Lomond

Printed at the "Launceston Examiner" Office.

TABLE showing the General Distribution of Tasmanian Land Shells, compiled from the Collections made at various times by W. Legrand, W. F. Petterd, Capt. Beddome, T. R. Atkinson, the Compiler, and others.

By ROBT. M. JOHNSTON.

	NORTH-EAST.						SOUTH-EAST.					SOUTH-WEST.			NORTH-WEST.							
	Islands in Bass Straits.	Vic. Ringarooma.	Vic. Blue Tier.	Myrtle Bank and Ben Lomond.	Launceston.	St. Patrick's River.	Vic. Mt. Wellington, Huon River.	Vic. Recherche Bay.	Vic. Orford.	Vic. Hamilton.	Oatlands.	Vic. Port Davey.	Vic. Macquarie Harb.	Vic. Pieman.	Vic. Circular Head.	Vic. Mt. Bischoff & Surrey Hills.	Vic. Table Cape & Emu Bay.	Vic. Gad's Hill & Middlesex Plains.	Vic. Leven and Torquay.	Chudleigh.	Australia.	
HELIX—																						
architectonica (Br.) ...	...	...	...	*b*	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	E.
antialba (B.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	...	...	...	N.W.
Bassi (Br.)	...	...	...	...	...	...	*c*	...	..	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Barrenensis (P.)	*b*	...	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	...	...	...	N.
bisulcata (Pfr.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Unknown.
Bischoffensis (B.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	...	...	...	N.W.
Cellaria (Mueller)	...	...	...	...	*a*	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	E.
Cæsus (C.)	*a*	...	...	...	...	...	...	*a*	...	...	...	...	...	...	*a*	...	...	...	...	...	...	G.
Collisi (Br.)	...	...	...	...	*a*	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	E.
Curaçoæ (Br.)	...	...	...	...	...	...	*c*	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Diemenensis (C.)	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	...	...	...	*a*	*a*	...	*a*	*a*	*a*	*a*	*a*	*a*	...	G.
direlicta (C.)	...	...	...	...	*b*	...	*b*	...	...	...	...	...	...	...	*b*	...	...	...	...	...	...	G.
dispar (Br.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	*a*	...	...	..	*a*	...	G.
Du Cani (C.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	*a*	*a*	...	N.W.
Dyeri (P.)	...	...	...	...	*b*	...	...	...	...	...	...	...	...	...	...	*b*	...	...	...	*b*	...	N.
Fordei (Br.)	...	...	...	...	...	...	*c*	*a*	...	...	...	...	...	...	...	*c*	...	...	...	...	*c*	S.E. : N.W.
Furneauxensis (P.)... ...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	...	*a*	...	...	N.
Gunni (Br.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Gadensis (B.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	...	..	...	N.W.
Hamiltoni (C.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	*b*	...	*b*	...	*b*	...	N.W.
Hobarti (C.)	...	...	...	...	*a*	...	*a*	...	...	...	...	...	...	...	*a*	...	...	...	...	*b*	*a*	G.
Halli (C.)...	...	*a*	...	...	*a*	...	*a*	*a*	...	...	...	...	...	...	*a*	*a*	*a*	*a*	*a*	*a*	...	G.
Henryana (P.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Hookeriana (R.M.J.) ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	...	...	N.W.
Jungermanniæ (P.) ...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Kingi (Br.)	...	*a*	...	*a*	...	...	...	...	...	...	...	...	...	...	*a*	...	...	...	*a*	...	...	N.
Kershawi (P.)	...	...	...	...	*a*	*a*	...	...	...	...	...	...	...	...	*c*	...	...	*c*	...	...	...	N.
lampra (Pfr.)	...	*a*	*a*	*a*	*a*	*a*	...	...	...	...	...	...	...	...	*a*	*c*	▪	*a*	▪	▪	...	N.
Launcestonensis (Reeve)	...	*a*	*a*	*a*	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Legrandi (C.)	...	*a*	...	...	*a*	...	*a*	*a*	*a*	...	*a*	...	...	...	*a*	*b*	*a*	*b*	*a*	*a*	*a*?	G.
lamproides (C.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*b*	...	...	...	...	...	...	N.W.
Luckmani (Br.)	...	...	...	...	*a*	...	*a*	...	...	...	...	...	...	...	...	...	*a*	...	...	...	...	E.
limula (C.)	...	...	*a*	*b*	*b*	...	...	...	...	...	...	...	...	...	*b*	*b*	*b*	*b*	...	▪	...	N.
Langleyana (Br.)	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	S.W.
Lottah (P.)	...	...	...	...	▪	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Morti (C.)...	...	...	...	...	*a*	...	*a*	...	...	...	...	...	...	...	*a*	...	*a*	...	*a*	...	*a*	G.
mimosa (P.)	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	*c*	...	N.
marchianæ (C.)	...	...	...	...	*a*	...	*b*	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	G.
M'Donaldi (C.)	...	...	...	...	*a*	...	*c*	*a*	...	...	...	...	...	...	...	*a*	...	*a*	...	*a*	...	G.
Mathinna (P.)...	...	...	...	..	*b*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Nelsonensis (Br.)	...	?	?	...	▪	...	*c*	*a*	...	...	...	*c*	...	...	*c*	*c*	...	*c*	*a*	*c*	...	G.
Officeri (C.)	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Otwayensis (P.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	...	*c*	N.W.
parvissima (C.)	...	...	...	...	*c*	...	*c*	...	...	...	...	...	...	...	...	*a*	...	*c*	...	...	...	G.
positura (C.)	...	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
plexus (C.)	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	*a*	...	...	...	*a*	...	...	N.
Petterdi (Br.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
pictilis (T.)	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	*a*	...	*a*	...	*a*	N.
pulchella (Mueller) ...	...	...	...	...	...	...	*a*	...	..	...	...	...	...	...	...	...	...	...	...	...	*a*	S.E.
questiosa (C.)	...	...	...	...	...	...	...	...	...	...	*a*	...	...	...	...	.	...	...	...	?	...	N.
ruga (C.)	*b*	...	...	...	*a*	...	*a*	*b*	*a*	...	...	...	...	...	*b*	...	...	...	*c*	...	*a*	G.
rotella (Br.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Roblini (P.)	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Sinclairi (Pfr.)...	...	...	...	...	*c*	...	*b*	▪	...	...	...	...	▪	...	*c*	▪	*a*	...	*b*	*a*	...	G.
subangulata (Pfr.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	Unknown.
sitiens (C.)	...	...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Stephensi (C.)...	...	...	...	*a*	*a*	...	*a*	*a*	...	...	...	...	▪	...	▪	*a*	*a*	*a*	*a*	*a*	...	G.
subrugosa (Br.)	...	...	*c*	*a*	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	G.
Spiceri (P.)	...	*c*	...	...	...	...	*c*	...	...	...	...	...	...	...	...	*c*	...	...	...	...	...	G.
Stanleyensis (P.)	*a*	*a*	*a*	...	*a*	...	*c*	...	...	...	...	...	...	...	[*a*	...	*a*	...	*a*	...	*a*	G.
Savèsi (P.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	...	...	...	N.W.
Tasmaniæ (C.)	...	...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
tranquilla (C.)	...	...	...	...	...	...	...	*c*	...	...	...	*c*	...	...	...	...	...	...	...	...	...	S.
Trucanini (P.)...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	...	N.E.
trajectura (C.)...	...	...	...	...	...	...	...	▪	...	...	...	*c*	...	...	...	...	...	...	...	...	...	S.
Tamarensis (P.)	...	...	...	...	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	N.E.
Vitrinaformis (C.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Wynyardensis (P.)... ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*c*	...	...	...	...	N.W.
Weldii (T.W.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	...	...	...	...	...	N.W.
BULIMUS—																						
Dufresni (Leach)	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	▪	▪	*a*	*a*	*a*	▪	▪	*c*	*a*	*a*	*a*	*a*	...	G.
Tasmanicus (Pfr.)	...	...	...	...	...	...	...	*a*	*a*	...	...	*a*	*a*	...	...	...	...	...	*a*	...	?	Coast line.
VITRINA—																						
Milligani (Pfr.)	...	...	...	...	...	...	...	...	...	...	...	...	*a*	...	...	...	...	...	...	...	...	W.
Verreauxi (Pfr.)	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	*a*	G.
fumosa (T.W.)	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	*c*	...	...	...	...	...	N.W.
SUCCINEA—																						
Legrandi (C.)	...	...	...	...	...	...	*c*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	S.E.
Australis (Pfr.)	*a*	*a*	...	...	*a*	...	*a*	...	*a*	...	...	...	...	...	*a*	...	...	...	*a*	...	?	G.
TRUNCATELLA—																						
scalarina (C.)	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	Bass Straits.
Tasmanica (T.W.)	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	Ditto
marginata (K.)	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	Ditto
micra (T.W.)	*a*	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	*a*	Ditto

a. common. *b.* not common. *c.* rare.

ABBREVIATIONS.—B., Beddome. Br., Brazier. C., Cox. P., Petterd. R.M.J., R. M. Johnston. T.W., Tenison-Woods. K., Küster.
G., Generally distributed throughout Tasmania.

3 2044 107 208 282